DAIKIN

SiBE611027_A

Service Manual

Fan Coil Unit - Convector -
Floor Standing Type A-Series

[Applied Models]

- Fan Coil Unit - Convector - : Heat Pump

Fan Coil Unit - Convector - Floor Standing Type A-Series

●Heat Pump

FWXV15AVEB
FWXV20AVEB

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1. Introduction

1.1 Safety Cautions

Cautions and Warnings

- Be sure to read the following safety cautions before conducting repair work.
- The caution items are classified into "⚠ **Warning**" and "⚠ **Caution**". The "⚠ **Warning**" items are especially important since they can lead to death or serious injury if they are not followed closely. The "⚠ **Caution**" items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.
- About the pictograms

△ This symbol indicates the item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.

◯ This symbol indicates the prohibited action.
The prohibited item or action is shown in the illustration or near the symbol.

● This symbol indicates the action that must be taken, or the instruction.
The instruction is shown in the illustration or near the symbol.

- After the repair work is complete, be sure to conduct a trial operation to ensure that the unit operates normally, and explain the cautions for operating the product to the customer.

1.1.1 Cautions Regarding Safety of Workers

⚠ **Warning**	
Be sure to turn off the power breaker before disassembling the unit for repair. Working on the unit with power supplied may cause an electrical shock. If it is necessary to supply power to the unit to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the unit.	
Do not start or stop operation by turning ON/OFF the power breaker. Turning ON/OFF the power breaker to operate the unit may cause an electrical shock or fire.	
Be sure to wear a safety helmet, gloves, and a safety belt when working at a high place (more than 2 m). Insufficient safety measures may cause a fall accident.	

Caution	
Do not repair the electrical components with wet hands. Working on the unit with wet hands may cause an electrical shock.	
Do not clean the unit by splashing water. Washing the unit with water may cause an electrical shock.	
Be sure to provide the grounding when repairing the unit in a humid or wet place, to avoid electrical shocks.	
Be sure to conduct repair work with appropriate tools. The use of inappropriate tools may cause injury.	
Be sure to check that the piping has cooled down enough before conducting repair work. Working on the unit when the piping is hot may cause burns.	

1.1.2 Cautions Regarding Safety of Users

Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the unit. The use of inappropriate parts or tools may cause an electrical shock, excessive heat generation or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires may cause an electrical shock, excessive heat generation or fire.	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances, since it may cause an electrical shock, excessive heat generation or fire.	
Be sure to use an exclusive power circuit for the unit, and follow the local technical standards related to the electrical equipment, the internal wiring regulations, and the instruction manual for installation when conducting electrical work. Insufficient power circuit capacity and improper electrical work may cause an electrical shock or fire.	
Be sure to use the specified cable for wiring. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals. Improper connections may cause excessive heat generation or fire.	
When wiring, make sure that the terminal cover does not lift off or dismount because of the cable. If the cover is not mounted properly, the terminal connection section may cause an electrical shock, excessive heat generation or fire.	
When relocating the unit, make sure that the new installation site has sufficient strength to withstand the weight of the unit. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the unit may fall and cause injury.	
This unit is designed for use with chilled or hot water. Using steam may damage the unit or cause it to malfunction, and can lead to a burning.	

Caution	
Installation of a leakage breaker is necessary to prevent electrical shocks.	
Do not install the unit in a place where there is a possibility of combustible gas leaks. If the combustible gas leaks and remains around the unit, it may cause a fire.	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections may cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame may cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the unit is not properly grounded. Improper grounding may cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 MΩ or higher. Faulty insulation may cause an electrical shock.	
Be sure to check that there is no water leakage of piping between indoor and outdoor after the repair. Leaked water can fall in drops and wet the furniture and floor.	
Never use water that does not satisfy EU drinking water quality standards. Do not use well water, either. Otherwise, the tank may be corroded. (Domestic hot water quality must be according to EN directive 98/83/EC.)	
The temperature of the water that flows through the unit must always be maintained between 6°C and 60°C.	
When the unit is not going to be used for a long period, it is best not to leave water in the unit's water pipes. Either fill the pipes with an anti-freeze solution or discharge the water. Leaving water in the pipes can cause water leakage.	

1.2 Used Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

Icon	Meaning	Description
Note:	Note	A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
Caution	Caution	A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage unit, loose data, get an unexpected result or has to restart (part of) a procedure.
Warning	Warning	A “warning” is used when there is danger of personal injury.
	Reference	A “reference” guides the reader to other places in this manual, where you can find additional information on a specific topic.

Part 1
List of Functions

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1. Functions

Category	Functions	FWXV15/20AVEB	Category	Functions	FWXV15/20AVEB
Comfortable Airflow	Power-Airflow Flap	—	Health & Clean	Air-Purifying Filter	—
	Power-Airflow Dual Flaps	—		Photocatalytic Deodorizing Filter	—
	Power-Airflow Diffuser	—		Air-Purifying Filter with Photocatalytic Deodorizing Function	—
	Wide-Angle Louvers	○			
	Vertical Auto-Swing (Up and Down)	○		Titanium Apatite Photocatalytic Air-Purifying Filter	○
	Horizontal Auto-Swing (Right and Left)	—			
	3-D Airflow	—		Air Filter (Prefilter)	○
Comfort Control	Auto Fan Speed	○		Wipe-Clean Flat Panel	○
	Indoor Unit Quiet Operation	○		Washable Grille	—
	FORCED QUIET Operation	○	Timer	WEEKLY TIMER Operation	○
	NIGHT QUIET Mode (Automatic)	—		24-Hour ON/OFF TIMER	○
	OUTDOOR UNIT QUIET Operation (Manual)	—		NIGHT SET Mode	—
	INTELLIGENT EYE Operation	—	Worry Free “Reliability & Durability”	Auto-Restart (after Power Failure)	○
	Quick Warming Function (Preheating Operation)	—		Self-Diagnosis (Digital, LED) Display	○
	Hot-Start Function	—	Flexibility	Multi-Split/Split Type Compatible Indoor Unit	—
	Automatic Defrosting	—		Changeover between Heating/Cooling Use and Heating Only Use	○
Operation	Automatic Operation	—			
	Program Dry Operation	—		Flexible Voltage Correspondence	—
	Fan Only	○		Either Side Drain (Right or Left)	—
Lifestyle Convenience	New POWERFUL Operation (Non-Inverter)	—	Remote Control	5-Rooms Centralized Controller (Option)	—
	POWERFUL Operation	○		Remote Control Adaptor (Normal Open Pulse Contact) (Option)	—
	HOME LEAVE Operation	—		Remote Control Adaptor (Normal Open Contact) (Option)	—
	ECONO Operation	—		DIII-NET Compatible (Adaptor) (Option)	—
	Indoor Unit ON/OFF Button	○	Remote Controller	Wireless	○
	Signal Receiving Sign	○		Wired (Option)	—
	R/C with Back Light	○			
	Temperature Display	—			

Note: ○ : Holding Functions
— : No Functions

Part 2
Specifications

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1. Specifications

50 Hz, 220 - 230 - 240 V / 60 Hz, 220 V

Model			FWXV15AVEB		FWXV20AVEB	
			Cooling	Heating	Cooling	Heating
Dimensions (H × W × D)		mm	600 × 700 × 210		600 × 700 × 210	
Packaged Dimensions (H × W × D)		mm	696 × 786 × 280		696 × 786 × 280	
Weight		kg	15		15	
Gross Weight		kg	19		19	
Front Panel Color			White		White	
Fan	Type		Turbo Fan		Turbo Fan	
	Speed	Steps	5 Steps, Quiet, Auto		5 Steps, Quiet, Auto	
Airflow Rate	m^3/h (cfm)	H	318 (188)	318 (188)	474 (280)	474 (280)
		M	228 (135)	228 (135)	354 (209)	354 (209)
		L	150 (89)	150 (89)	240 (142)	240 (142)
		SL	126 (74)	126 (74)	198 (117)	198 (117)
Capacity ★	Total Capacity (Rated: M)	kW	1.2	1.5	1.7	2.0
		Btu/h	4,100	5,100	5,800	6,800
	Sensible Capacity (Rated: M)	kW	0.98	—	1.4	—
		Btu/h	3,300	—	4,800	—
	Water Volume (Rated: M)	m^3/h	0.20	0.26	0.29	0.34
		L/min	3.4	4.3	4.9	5.7
	Water Pressure Drop (Rated: M)	kPa	10	13	19	22
Running Current (Rated: M)		A	0.08	0.08	0.10	0.10
Power Consumption (Rated: M)		W	13	13	15	15
Power Factor (Rated: M)		%	70.7	70.7	65.2	65.2
Operation Sound	(Rated: M)	dB(A)	19	19	29	29
Sound Power	(Rated: M)	dB(A)	35	35	45	45
Air Direction Control			Right, Left, Horizontal, Downward		Right, Left, Horizontal, Downward	
Air Filter			Removable / Washable / Mildew Proof		Removable / Washable / Mildew Proof	
Temperature Control			Microcomputer Control		Microcomputer Control	
Connection Pipe Size	Inlet	inch	G 1/2		G 1/2	
	Outlet	inch	G 1/2		G 1/2	
	Drain	mm	ϕ 18		ϕ 18	
Heat Insulation			Both Inlet and Outlet Pipes		Both Inlet and Outlet Pipes	
Drawing No.			3D066678A			

Note:

1. The range of usable water temperature is 6°C (min.) to 60°C (max.).
2. Maximum allowable water pressure is 1.18 MPa.
3. Comply with drinking water directive 98/83/EC for chilled water, hot water and make-up water.
4. The amount of water circulation should be 3 L/min to 15 L/min. (0.18 m^3/h to 0.9 m^3/h).
5. Allowable model of hydrobox interlinking is BA-series or later. (Refer to page 80 for detail.)
6. ★ The data are based on the following conditions.

Cooling	Heating
Room Temperature: 27°CDB, 19°CWB	Room Temperature: 20°CDB
Entering Water Temperature: 7°C	Entering Water Temperature: 45°C
Water Temperature Rise: 5 K	Water Temperature Drop: 5 K

Conversion Formulae
Btu/h = kW × 3412
cfm = m^3/min × 35.3

Part 3
Printed Circuit Board Connector Wiring Diagram

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1. Printed Circuit Board Connector Wiring Diagram

Connectors and Other Parts

PCB (1): Sensor PCB

1)	S49	Connector for control PCB
2)	RTH2 (R1T)	Room temperature thermistor

PCB (2): Control PCB

1)	S1	Connector for fan motor
2)	S19, S43	Connector for sub PCB
3)	S21	Connector for centralized control (HA)
4)	S26	Connector for service PCB
5)	S32	Indoor heat exchanger thermistor
6)	S41	Connector for lower air outlet motor
7)	S42	Connector for swing motor
8)	S46	Connector for display PCB
9)	S48	Connector for sensor PCB
10)	H1, H2, H3	Connector for terminal board
11)	E1	Terminal for earth
12)	V1, V2	Varistor
13)	JA	Address setting jumper ∗ Refer to page 79 for detail.
	JC	Power failure recovery function ∗ Refer to page 80 for detail.
14)	FU1 (F1U)	Fuse (3.15 A, 250 V)
15)	LED A	LED for service monitor (green)

PCB (3): Service PCB

1)	S27	Connector for control PCB
2)	SW2-1	Switch for changeover between heating/cooling use and heating only use ∗ Refer to page 80 for detail.
3)	SW2-2	Switch for interlinked control with “Altherma” ∗ Refer to page 80 for detail.
4)	SW2-4	Switch for upward airflow limit setting ∗ Refer to page 80 for detail.
5)	SW4 (S4W)	Switch for air outlet selection ∗ Refer to page 19, 25 for detail.

PCB (4): Display PCB

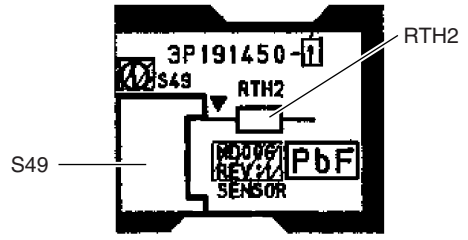
1)	S47	Connector for control PCB
2)	SW1 (S1W)	Forced operation ON/OFF button ∗ Refer to page 75 for detail.
3)	LED1 (H1P)	LED for operation (green)
4)	LED2 (H2P)	LED for timer (yellow)

PCB (5): Sub PCB

1)	S10, S30	Connector for control PCB
2)	S40	Connector for terminal board
3)	FU11 (F11U)	Fuse (3.15 A, 250 V)
4)	FU12 (F12U)	Fuse (125 mA, 250 V)

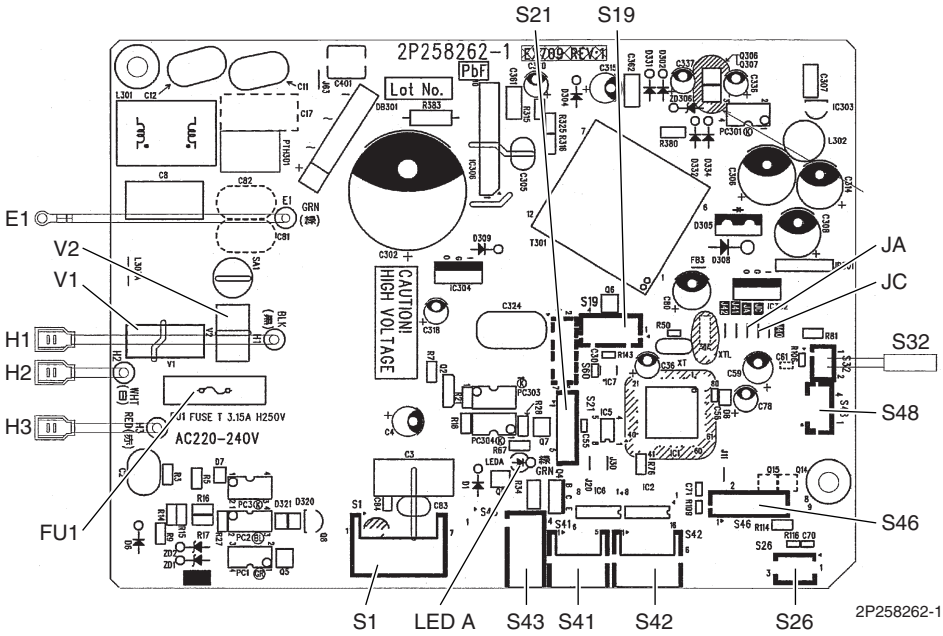
PCB Detail

PCB (1): Sensor PCB



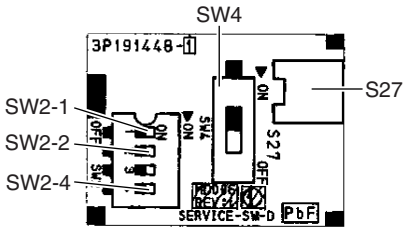
3P191450-1

PCB (2): Control PCB



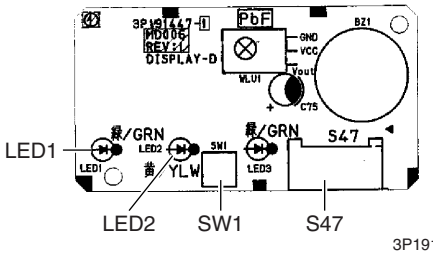
2P258262-1

PCB (3): Service PCB



3P191448-1

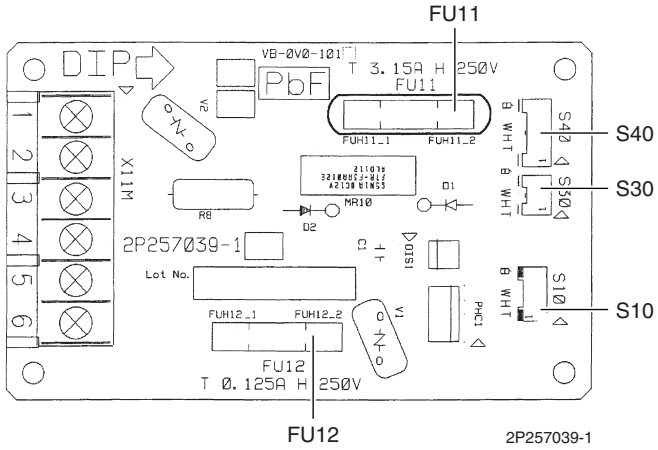
PCB (4): Display PCB



3P191447-1

☆ LED 3 does not function.

PCB (5): Sub PCB



2P257039-1

Part 4
Function and Control

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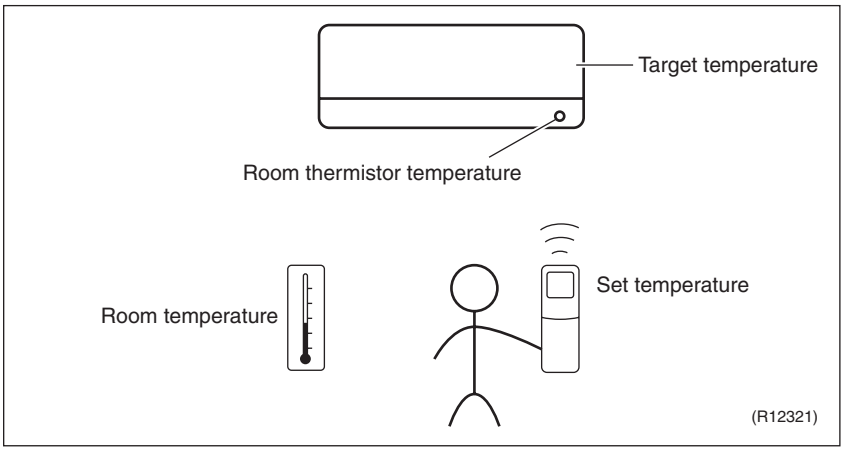
1. Temperature Control

Definitions of Temperatures

The definitions of temperatures are classified as following.

- Room temperature: temperature of lower part of the room
- Set temperature: temperature set by remote controller
- Room thermistor temperature: temperature detected by room temperature thermistor
- Target temperature: temperature determined by microcomputer



★ The illustration is for wall mounted type as representative.

Temperature Control

The temperature of the room is detected by the room temperature thermistor. However, there is difference between the “temperature detected by room temperature thermistor” and the “temperature of lower part of the room”, depending on the type of the indoor unit or installation condition. Practically, the temperature control is done by the “target temperature appropriately adjusted for the indoor unit” and the “temperature detected by room temperature thermistor”.

2. Airflow Direction Control

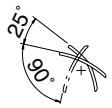
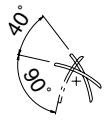
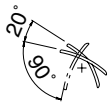
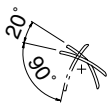
Wide-Angle Louvers

The louvers, made of elastic synthetic resin, provide a wide range of airflow that guarantees a comfortable air distribution.

	Right and Left (manual)
Upper air outlet	(R6827)
Lower air outlet	(R6828)

Auto-Swing

The following table explains the auto-swing process for cooling and heating:

	Up and Down	
	Cooling	Heating
Upward airflow limit OFF	 (R6831)	 (R6829)
Upward airflow limit ON	 (R6832)	 (R6830)

Flap Control for Dew Prevention

During cooling operation, the flap angle is adjusted to prevent dew condensation around the air oultet.
The angle range for fixing flap differs from the one for auto-swing.

3. Fan Speed Control

Outline

Phase control and fan speed control contains 10 steps: LLL, LL, Q, S, L, ML, M, MH, H, and HH. The airflow rate can be automatically controlled depending on the difference between the room thermistor temperature and the target temperature. This is done through phase control and Hall IC control.

For more information about Hall IC, refer to the troubleshooting for fan motor on page 46.

Automatic Fan Speed Control

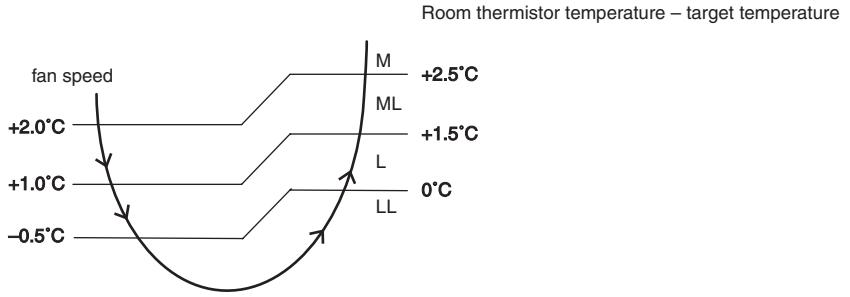
In automatic fan speed operation, the steps “Q” and “S” are not available.

Step	Cooling/Heating	Fan
LLL	⟺ (R6834)	L tap fixed
LL		
L		
ML		
M		
MH		
H		
HH (POWERFUL)		

⟺ = The airflow rate is automatically controlled within this range when the FAN setting button is set to automatic.

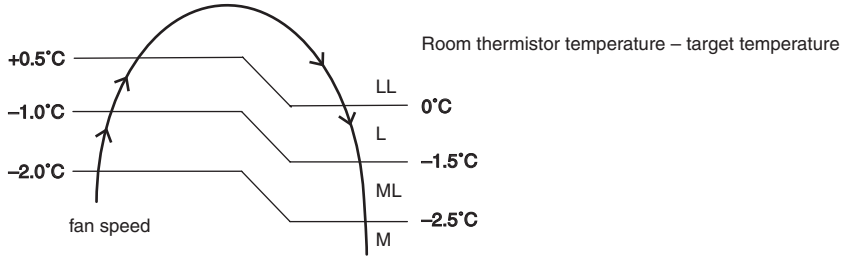
Cooling

The following drawing explains the principle of fan speed control for cooling.



(R12701)

Heating

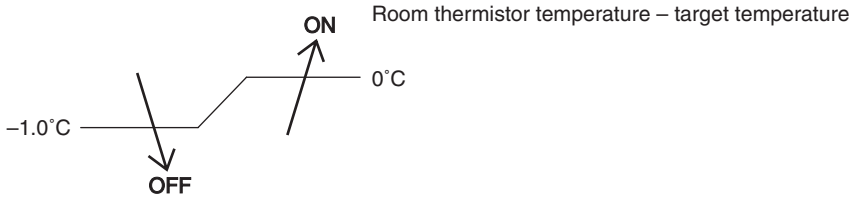


(R12702)

4. Thermostat Control

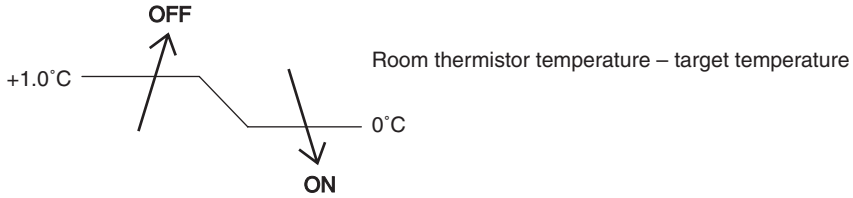
Thermostat control is based on the difference between the room thermistor temperature and the target temperature.

Cooling



(R12703)

Heating



(R12704)

Refer to “Temperature Control” on page 9 for detail.

5. POWERFUL Operation

Outline

In order to exploit the cooling and heating capacity to full extent, operate the unit by increasing indoor fan rotating speed.

Detail

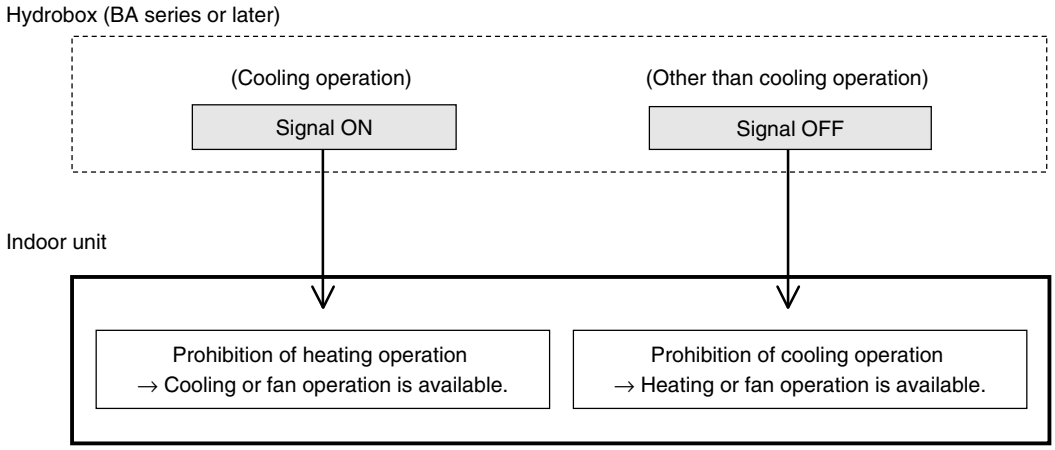
Start	Press the POWERFUL button on the remote controller.
Operation	15 class : H tap + 80 rpm 20 class : H tap + 60 rpm
End	The POWERFUL operation ends when any of the following conditions is fulfilled. 1) The operation ends automatically after 20 minutes. 2) The operation is stopped. 3) Press the POWERFUL button on the remote controller.
Others	The protection functions are prior to the POWERFUL operation.

6. Interlinked Control with “Altherma”

Outline

When the hydrobox (BA series or later) is connected and the switch for interlinked control with "Altherma" is effective, the system checks if the operation mode on the hydrobox and the one on the indoor unit are compatible or not. When the two operation modes are incompatible, the operation lamp indicates the situation.
Refer to page 80 about the switch for interlinked control with "Altherma".

Detail



(R12711)

When the setting of the hydrobox is cooling operation, you cannot start heating operation on the indoor unit because the operation modes are incompatible. In the same way, when the setting of the hydrobox is other than cooling operation, you cannot start cooling operation on the indoor unit. When the two operation modes become compatible by changing operation mode of the hydrobox or of the indoor unit, you can start operation.

When the two operation modes are incompatible,
→ the operation lamp repeats ON (2.5 seconds) and OFF (0.5 second).
→ the operation stops or does not start.

When the two operation modes are compatible,
→ the operation lamp is ON.
→ the operation starts.

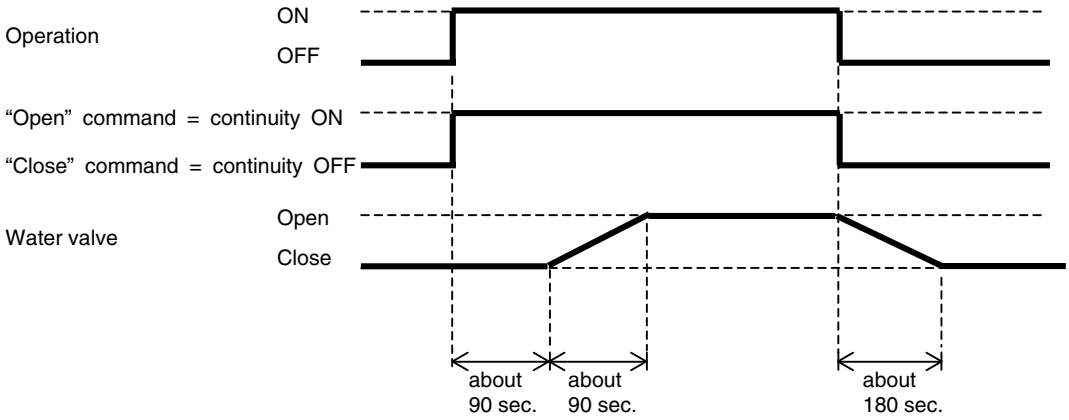
7. Water Valve Control

Outline

When the optional 2-way valve kit (EKVKHPC) is adopted, the quantity of water is controlled according to the status of the operation.

Detail

The optional 2-way valve moves behind the command for “open” or “close” (continuity ON/OFF).

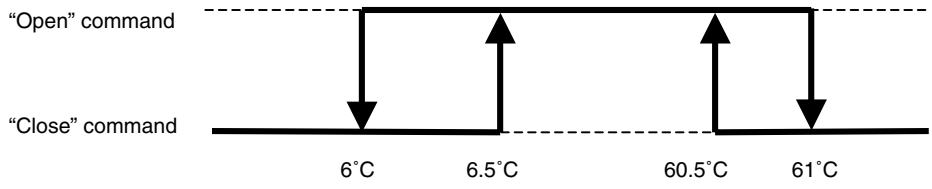


(R12712)

During operation, the water valve keeps open except when any of the following protection controls is activated.

■ **Protection Control for Water Temperature**

When the indoor heat exchanger thermistor detects that the water temperature is out of range for use (under 6°C or over 61°C), the water valve closes for protection.
The water valve reopens after 10 minutes to determine the water temperature again.



(R12713)

■ **Dew Prevention Control for Indoor Unit**

During cooling operation, if the thermostat keeps OFF over 480 minutes, the water valve closes. While the water valve closes due to thermostat OFF, if the thermostat becomes ON, the water valve reopens.

8. Other Functions

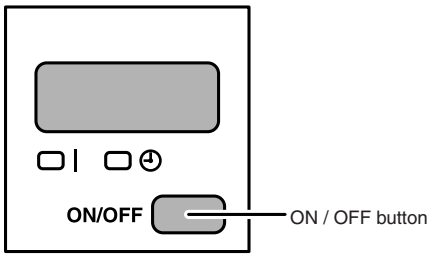
8.1 Signal Receiving Sign

When the indoor unit receives a signal from the remote controller, the unit emits a signal receiving sound.

8.2 Indoor Unit ON/OFF Button

An ON/OFF button is provided on the display of the unit.

- Press the button to start operation. Press it again to stop.
- It is useful when the remote controller is missing or the battery has run out.
- The operation starts with the same settings (mode, temperature, airflow rate, airflow direction) as the last operation.



(R12705)

<Forced operation mode>

Forced operation mode can be started by pressing the ON/OFF button for 5 to 9 seconds while the unit is not operating.

Refer to "Forced operation mode" on page 75 for detail.

Note: When the ON/OFF button is pressed for 10 seconds or more, the forced operation is stopped.

8.3 Titanium Apatite Photocatalytic Air-Purifying Filter

This filter combines the Air-Purifying Filter and Titanium Apatite Photocatalytic Deodorizing Filter as a single highly effective filter. The filter traps microscopic particles, decompose odors and even deactivates bacteria and viruses. It lasts for 3 years without replacement if washed about once every 6 months.

8.4 Auto-restart Function

Even if a power failure (including one for just a moment) occurs during the operation, the operation restarts automatically when the power is restored in the same condition as before the power failure.

8.5 WEEKLY TIMER Operation

Up to 4 timer settings can be saved for each day of the week (up to 28 settings in total). Those 3 items of “ON/OFF”, “temperature” and “time” can be set.

Refer to “WEEKLY TIMER Operation” on page 30 for detail.

Part 5
Operation Manual

1. System Configuration....18
2. Operation Manual....19
   2.1 Names of Parts....19
   2.2 COOL · HEAT · FAN Operation....22
   2.3 Adjusting the Airflow Direction....24
   2.4 POWERFUL Operation....26
   2.5 FORCED QUIET Operation....27
   2.6 OFF TIMER Operation....28
   2.7 ON TIMER Operation....29
   2.8 WEEKLY TIMER Operation....30

1. System Configuration

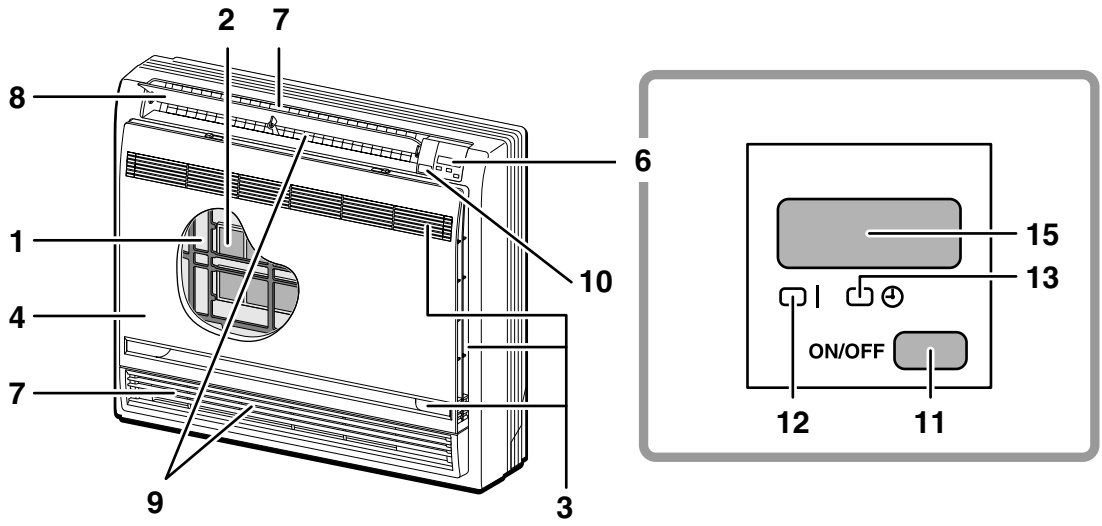
After the installation and test operation of the room air conditioner have been completed, it should be operated and handled as described below. Every user would like to know the correct method of operation of the room air conditioner, to check if it is capable of cooling (or heating) well, and to know a clever method of using it.
In order to meet this expectation of the users, giving sufficient explanations taking enough time can be said to reduce about 80% of the requests for servicing. However good the installation work is and however good the functions are, the customer may blame either the room air conditioner or its installation work because of improper handling. The installation work and handing over of the unit can only be considered to have been completed when its handling has been explained to the user without using technical terms but giving full knowledge of the equipment.

2. Operation Manual

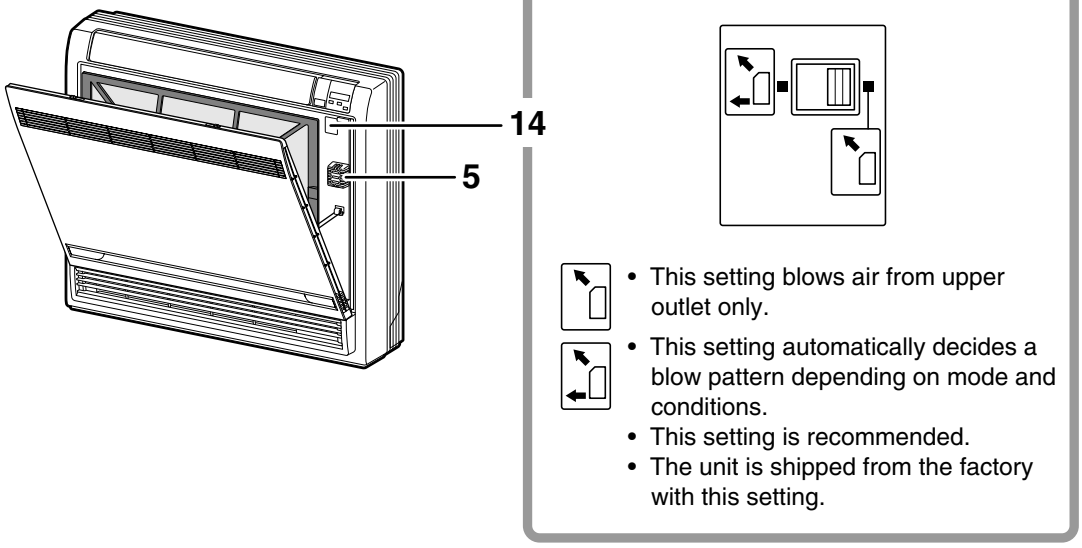
2.1 Names of Parts

Names of Parts

■ Indoor Unit



■ Open the front panel


14
5
Air outlet selection switch
• This setting blows air from upper outlet only.
• This setting automatically decides a blow pattern depending on mode and conditions.
• This setting is recommended.
• The unit is shipped from the factory with this setting.

⚠ CAUTION

Before opening the front panel, be sure to stop the operation and turn the breaker off.
Do not touch the metal parts on the inside of the indoor unit, as it may result in injury.

4

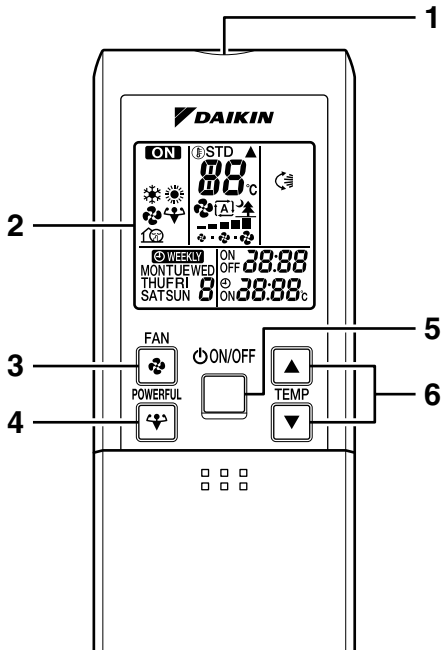
■ Indoor Unit

1. **Air filter**
2. **Titanium apatite photocatalytic air-purifying filter:**
   - These filters are attached to the inside of the air filter.
3. **Air inlet**
4. **Front panel**
5. **Room temperature sensor:**
   - It senses the air temperature around the unit.
6. **Display**
7. **Air outlet**
8. **Flap (horizontal blade):** (page 12)
9. **Louvers (vertical blades):**
   - The louvers are inside of the air outlet. (page 12)
10. **Model name plate**
11. **Indoor unit ON/OFF switch:**
    - The operation mode will be the mode that was in effect before the unit was stopped.
    - This switch is useful when the remote controller is missing.
12. **OPERATION lamp (green)**
13. **TIMER lamp (yellow):** (page 16)
14. **Air outlet selection switch:** (page 13)
15. **Signal receiver:**
    - It receives signals from the remote controller.
    - When the unit receives a signal, you will hear a short beep.
      - Operation start .....beep-beep
      - Settings changed .....beep
      - Operation stop.....long beep

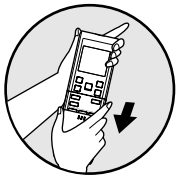
5

Names of Parts

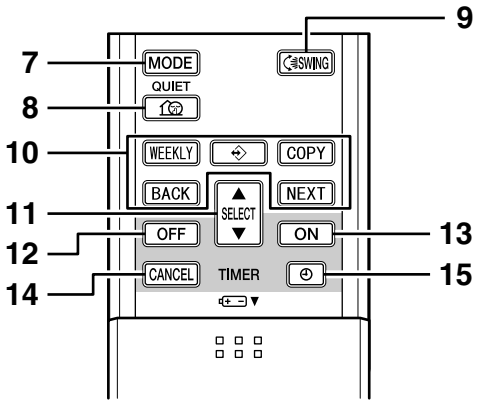
■ Remote Controller



<ARC452A15>



<Open the front cover>



1. Signal transmitter:
- It sends signals to the indoor unit.

2. Display (LCD):
- It displays the current settings. (In this illustration, each section is shown with its displays on for the purpose of explanation.)

3. FAN setting button:
- It selects the airflow rate setting.

4. POWERFUL button:
POWERFUL operation (page 14)

5. ON/OFF button:
- Press this button once to start operation. Press once again to stop it.

6. TEMPERATURE adjustment buttons:
- It changes the temperature setting.

7. MODE selector button:
- It selects the operation mode. (COOL/HEAT/FAN) (page 10)

8. QUIET button:
FORCED QUIET operation (page 15)

9. SWING button:
- Adjusting the airflow direction (page 12)

10. WEEKLY/PROGRAM/COPY/BACK/NEXT button:
- WEEKLY TIMER operation (page 18)

11. SELECT button:
- It changes the ON/OFF TIMER and WEEKLY TIMER settings. (page 16, 18)

12. OFF TIMER button: (page 16)

13. ON TIMER button: (page 17)

14. TIMER CANCEL button:
- It cancels the timer setting. (page 16, 17)
- It cannot be used for the WEEKLY TIMER operation.

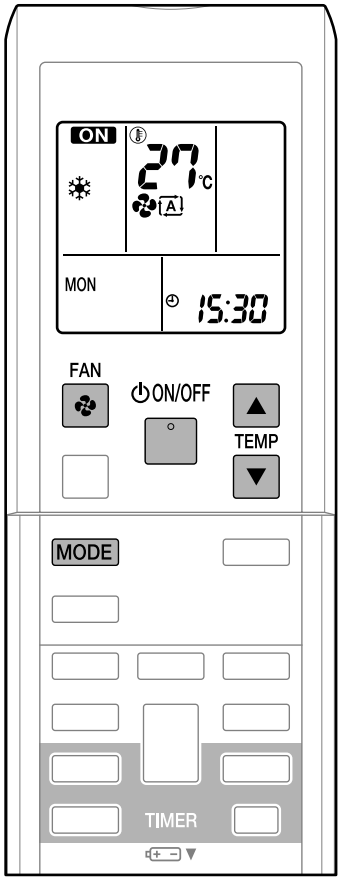
15. CLOCK button

6

2.2 COOL · HEAT · FAN Operation

COOL · HEAT · FAN Operation

The unit operates with the operation mode of your choice. From the next time on, the unit will operate with the same operation mode



■ To start operation

1. Press MODE and select a operation mode.

- Each pressing of the button advances the mode setting in sequence

: COOL

: HEAT

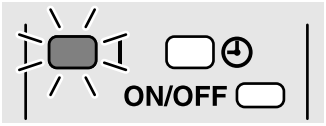
: FAN

Heating only use

Heating/cooling use

2. Press ON/OFF .

- "ON" is displayed on the LCD.
- The OPERATION lamp lights up.



■ To stop operation

3. Press ON/OFF again.

- "ON" disappears from the LCD.
- Then OPERATION lamp goes off.

■ To change the temperature setting

4. Press ▲ TEMP or TEMP ▼ .

COOL or HEAT operation	FAN operation
Press ▲ to raise the temperature and press ▼ to lower the temperature.	The temperature setting is not variable.
Set to the temperature you like.	

■ To change the airflow rate setting

5. Press .

COOL or HEAT or FAN operation
5 levels of airflow rate setting from " " to " " plus " " " " are available.

- Indoor unit quiet operation

  When the airflow is set to " ", the noise from the indoor unit will become quieter. Use this when making the noise quieter.

NOTE

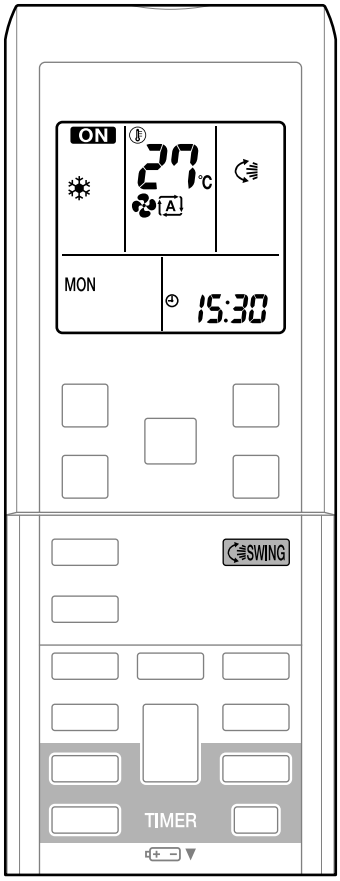
■ **Note on COOL and HEAT operation**

- Use the unit within the following water temperature range:
  Minimum water temperature: 6˚C
  Maximum water temperature: 60˚C

2.3 Adjusting the Airflow Direction

Adjusting the Airflow Direction

You can adjust the airflow direction to increase your comfort.



■ To start auto swing

Upper and lower airflow direction

Press SWING.

- "" is displayed on the LCD.
- The flap (horizontal blade) will begin to swing.

■ To set the flap at desired position

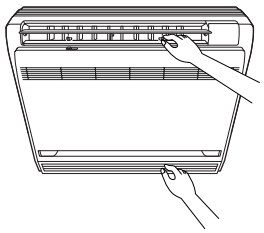
- This function is effective while flap is in auto swing mode.

Press SWING when the flap has reached the desired position.

- The flap will stop moving.
- "" disappears from the LCD.

■ To adjust the louvers (vertical blades)

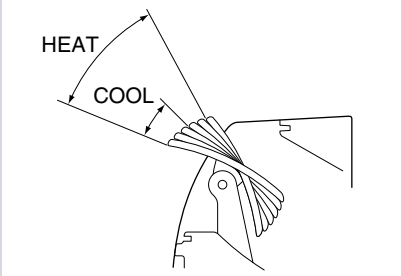
- Hold the knob and move the louvers.
  (You will find a knob on the left-side and the right-side blades.)



NOTE

■ **Note on flap and louvers angle**

- Unless "SWING" is selected, you should set the flap at a near-horizontal angle in HEAT operation and at a upward position in COOL operation to obtain the best performance.
- During COOL operation, the range within which the flap swings differs from the range within which the flap can be fixed.



■ **ATTENTION**

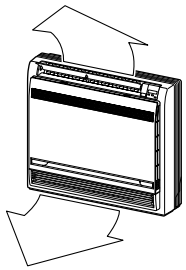
- When adjusting the flap by hand, turn off the unit, and use the remote controller to restart the unit.
- Be careful when adjusting the louvers. Inside the air outlet, a fan is rotating at a high speed.

■ Airflow selection

- Make airflow selection according to what suits you.

When setting the airflow selection switch to .

- Unit automatically decides the appropriate blowing pattern depending on the operation mode/situation.

Mode	Situation	Blowing pattern
COOL	• When the room has become fully cool, or when one hour has passed since turning on the unit.	• So that air does not come into direct contact with people, air is blown upper air outlet, room temperature is equalized.
	• At start of operation or other times when the room is not fully cooled.	 • Air is blown from the upper and lower air outlets for high speed cooling during COOL operation, and for filling the room with warm air during HEAT operation.
HEAT	• At times other than below. (Normal time.)	
	• At start or when air temperature is low.	• So that air does not come into direct contact with people. Air is blown upper air outlet.

When setting the air outlet selection switch to .

- Regardless of the operation mode or situation, air blows from the upper air outlet.
- Use this switch when you do not want air coming out of the lower air outlet. (While sleeping etc.)

⚠ CAUTION

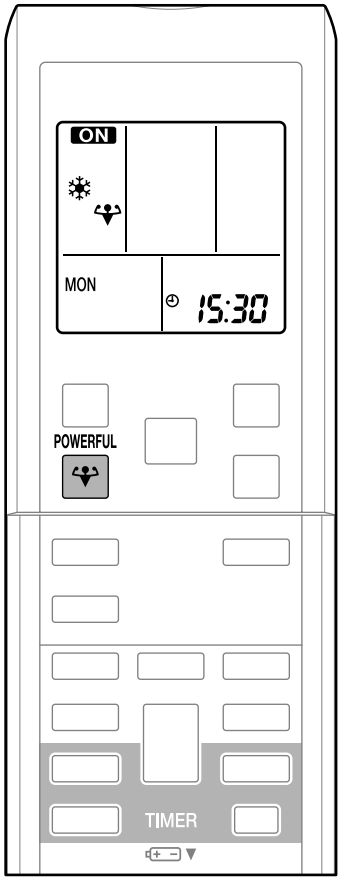
- Do not try to adjust the flap by hand.
- When adjusting by hand, the mechanism may not operate properly or condensation may drip from air outlets.

13

2.4 POWERFUL Operation

POWERFUL Operation

POWERFUL operation quickly maximizes the cooling (heating) effect in any operation mode. You can get the maximum capacity.



■ To start POWERFUL operation

1. Press .

- POWERFUL operation ends in 20 minutes. Then the system automatically operates again with the previous settings which were used before POWERFUL operation..
- "" is displayed on the LCD.

■ To cancel POWERFUL operation

2. Press again.

- "" disappears from the LCD.

NOTE

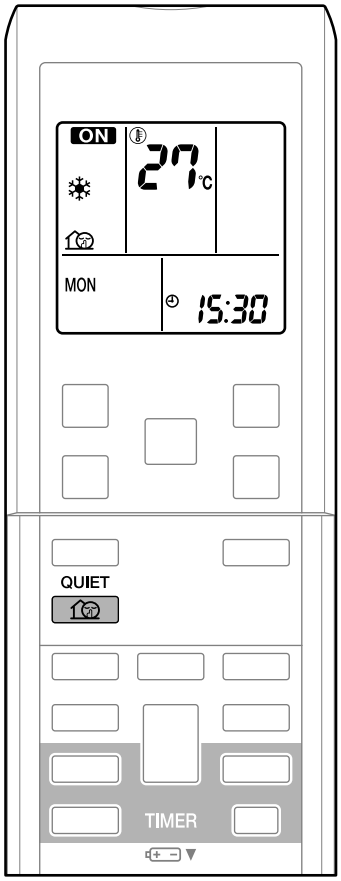
■ **Notes on POWERFUL operation**

- POWERFUL operation cannot be used together with FORCED QUIET operation. Priority is given to the function of whichever button is pressed last.
- POWERFUL operation can only be set when the unit is running.
- **In COOL and HEAT operation**
  To maximize the cooling (heating) effect, and the airflow rate be fixed to the maximum setting.
  The temperature and airflow settings are not variable.
- **In FAN operation**
  The airflow rate is fixed to the maximum setting.

2.5 FORCED QUIET Operation

FORCED QUIET Operation

FORCED QUIET operation lowers the noise level of the indoor unit by changing the fan speed. This function is convenient during night.



■ To start FORCED QUIET operation

1. **Press** [QUIET] **.**
   - "QUIET" is displayed on the LCD.

■ To cancel FORCED QUIET operation

2. **Press** [QUIET] **again.**
   - "QUIET" disappears from the LCD.

NOTE

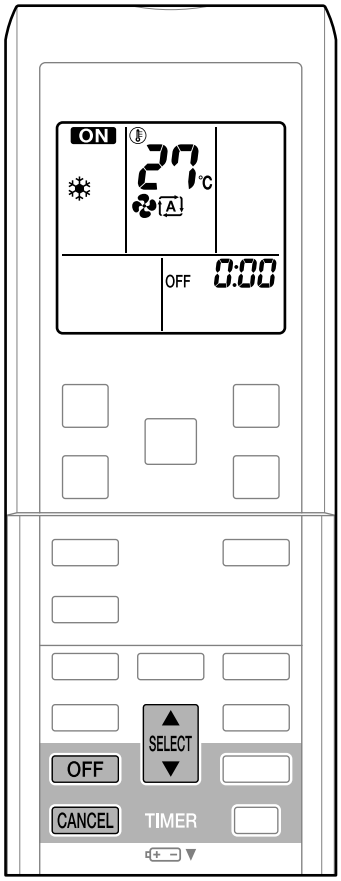
■ **Notes on FORCED QUIET operation**
- POWERFUL operation and FORCED QUIET operation cannot be used at the same time. Priority is given to the function of whichever button is pressed last.
- Cooling and heating capacity may be slightly lower than during normal operation.

15

2.6 OFF TIMER Operation

OFF TIMER Operation

Timer functions are useful for automatically switching the unit on or off at night or in the morning. You can also use OFF TIMER and ON TIMER in combination.



■ To use OFF TIMER operation

- Check that the clock is correct.
  If not, set the clock to the present time.

1. Press OFF .

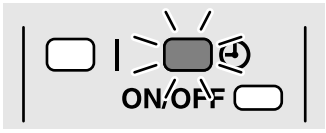
- "OFF" and setting time are displayed on the LCD.
- "0:00" is displayed on the LCD.
- "OFF" blinks.

2. Press SELECT until the time setting reaches the point you like.

- Each pressing of either button increases or decreases the time setting by 10 minutes. Holding down either button changes the setting rapidly.

3. Press OFF again.

- The TIMER lamp lights up.



■ To cancel OFF TIMER operation

4. Press CANCEL .

- "OFF" and setting time disappear from the LCD.
- "🕘" and day of the week are displayed on the LCD.
- The TIMER lamp goes off.

NOTE

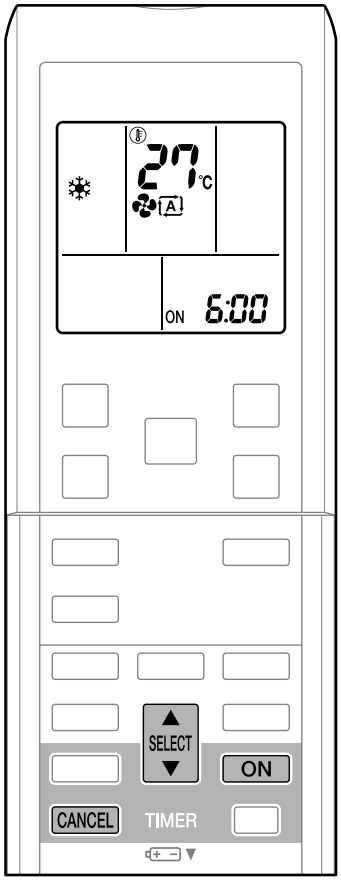
■ Notes on TIMER operation

- When TIMER is set, the present time is not displayed.
- Once you set ON/OFF TIMER, the time setting is kept in the memory. The memory is canceled when remote controller batteries are replaced.
- When operating the unit via the ON/OFF TIMER, the actual length of operation may vary from the time entered by the user. (Maximum approx. 10 minutes)

2.7 ON TIMER Operation

ON TIMER Operation

■ To use ON TIMER operation



• Check that the clock is correct. If not, set the clock to the present time.

1. Press ON .

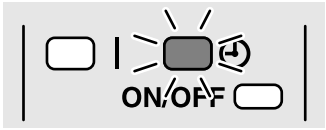
• "ON" and setting time are displayed on the LCD.
• "6:00" is displayed on the LCD.
• "ON" blinks.

2. Press SELECT until the time setting reaches the point you like.

• Each pressing of either button increases or decreases the time setting by 10 minutes. Holding down either button changes the setting rapidly.

3. Press ON again.

• The TIMER lamp lights up.



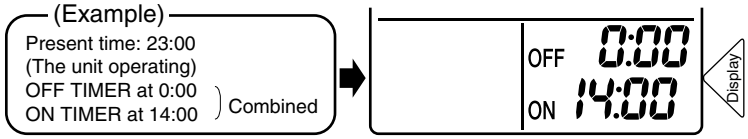
■ To cancel ON TIMER operation

4. Press CANCEL .

• "ON" and setting time disappear from the LCD.
• "🕘" and day of the week are displayed on the LCD.
• The TIMER lamp goes off.

■ To combine ON TIMER and OFF TIMER

• A sample setting for combining the 2 timers is shown below.



NOTE

■ **In the following cases, set the timer again.**
• After a breaker has turned off.
• After a power failure.
• After replacing batteries in the remote controller.

2.8 WEEKLY TIMER Operation

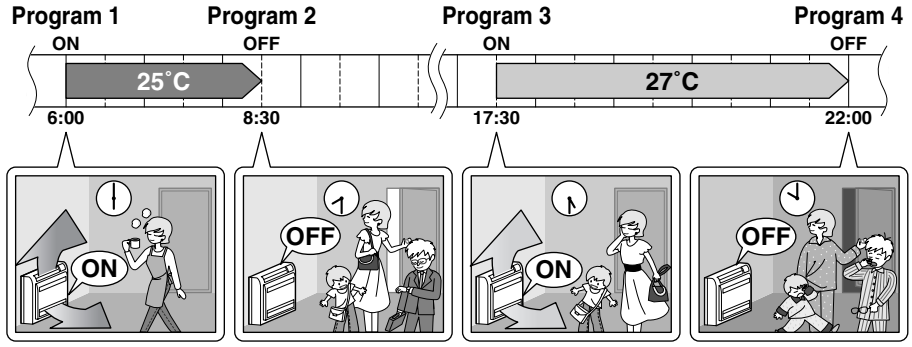
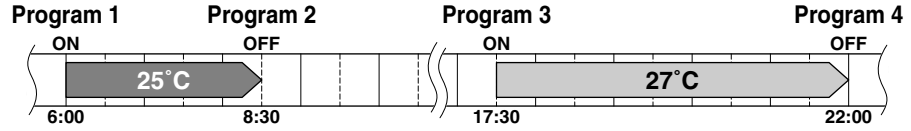
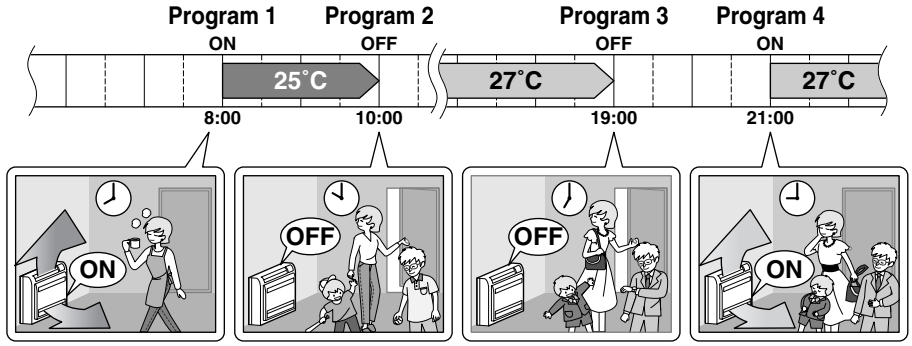
WEEKLY TIMER Operation

Up to 4 timer settings can be saved for each day of the week. It is convenient if the WEEKLY TIMER is set according to the family's life style.

■ Using in these cases of WEEKLY TIMER

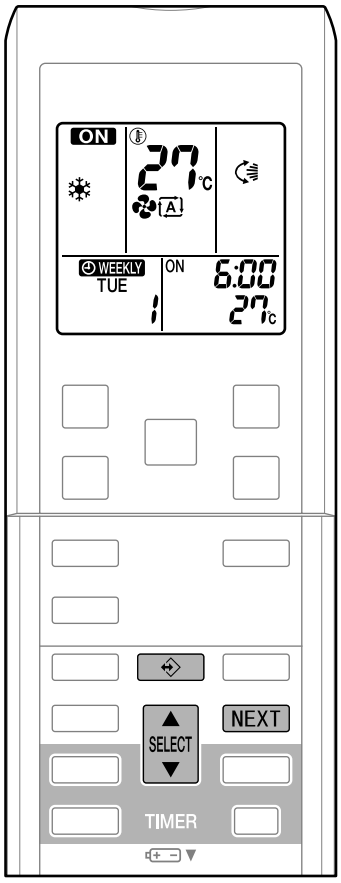
An example of WEEKLY TIMER settings is shown below.

Example: The same timer settings are made for the week from Monday through Friday while different timer settings are made for the weekend.

<table>
<tr><td>[Monday]</td><td>Make timer settings up to programs 1-4. (see page 19)
 
</td></tr>
<tr><td>[Tuesday] to [Friday]</td><td>Use the copy mode to make settings for Tuesday to Friday, because these settings are the same as those for Monday. (see page 22)
 
</td></tr>
<tr><td>[Saturday]</td><td>No timer settings</td></tr>
<tr><td>[Sunday]</td><td>Make timer settings up to programs 1-4. (see page 19)
 
</td></tr>
</table>

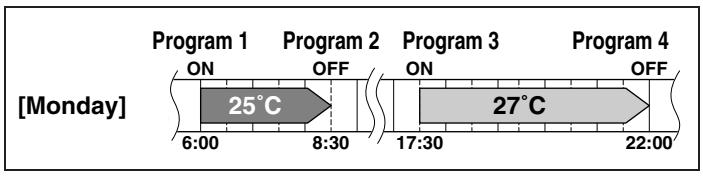
- Up to 4 reservations per day and 28 reservations per week can be set in the WEEKLY TIMER. The effective use of the copy mode ensures ease of making reservations.
- The use of ON-ON-ON-ON settings, for example, makes it possible to schedule operation mode and set temperature changes. Furthermore, by using OFF-OFF-OFF-OFF settings, only the turn off time of each day can be set. This will turn off the unit automatically if the user forgets to turn it off.

■ To use WEEKLY TIMER operation



Setting mode

- Make sure the day of the week and time are set. If not, set the day of the week and time.



1. Press ⏩ **.**

- The day of the week and the reservation number of the current day will be displayed.
- 1 to 4 settings can be made per day.

2. Press SELECT ▲▼ to select the desired day of the week and reservation number.

- Pressing the SELECT ▲▼ changes the reservation number and the day of the week.

3. Press NEXT .

- The day of the week and reservation number will be set.
- "WEEKLY" and "ON" blink.

4. Press SELECT ▲▼ to select the desired mode.

- Pressing the SELECT ▲▼ changes "ON" or "OFF" setting in sequence.

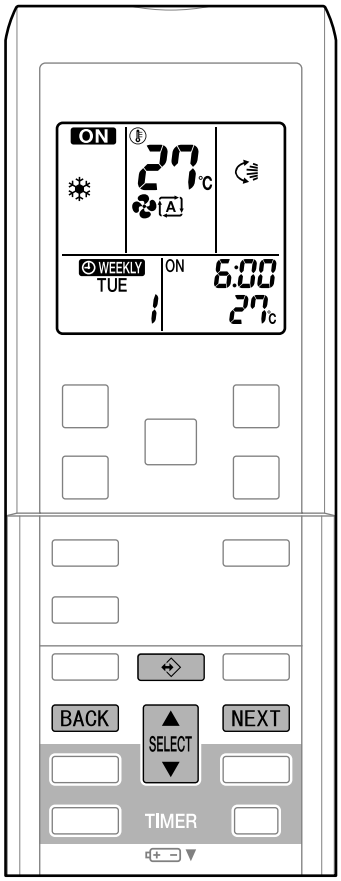
→ ON (ON TIMER) → OFF (OFF TIMER) → blank →

- In case the reservation has already been set, selecting "blank" deletes the reservation.
- Go to step **9** if "blank" is selected.

5. Press NEXT .

- The ON/OFF TIMER mode will be set.
- "WEEKLY" and the time blink.

WEEKLY TIMER Operation



6. Press SELECT to select the desired time.

- The time can be set between 0:00 and 23:50 in 10 minute intervals.
- To return to the ON/OFF TIMER mode setting, press BACK.
- Go to step **9** when setting the OFF TIMER.

7. Press NEXT .

- The time will be set.
- "WEEKLY" and the temperature blink.

8. Press SELECT to select the desired temperature.

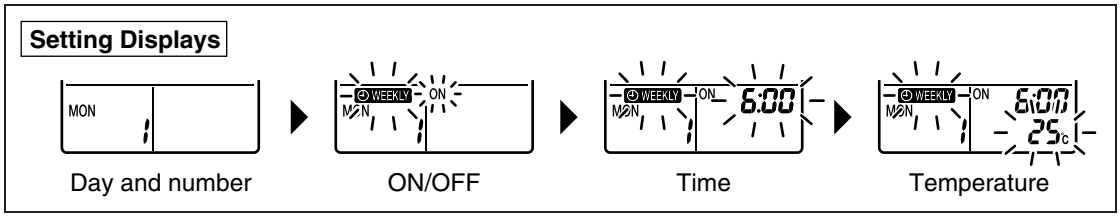
- The temperature can be set between 10˚C and 32˚C.
  Cooling: The unit operates at 18˚C even if it is set at 10 to 17˚C.
  Heating: The unit operates at 30˚C even if it is set at 31 to 32˚C.
- To return to the time setting, press BACK .
- The set temperature is only displayed when the mode setting is on.

9. Press NEXT .

- The temperature will be set and go to the next reservation setting.
- To continue further settings, repeat the procedure from step **4**.

10. Press ◈ to complete the setting.

- Be sure to direct the remote controller toward the indoor unit and check for a receiving tone and flashing the OPERATION lamp.
- "WEEKLY" is displayed on the LCD and WEEKLY TIMER operation is activated.
- The TIMER lamp lights up.
- A reservation made once can be easily copied and the same settings used for another day of the week.
  Refer to copy mode. (page 22)



NOTE

■ **Notes on WEEKLY TIMER operation**

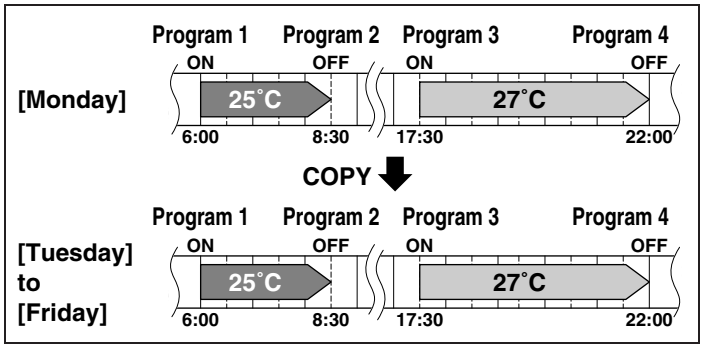
- Do not forget to set the clock on the remote controller first.
- The day of the week, ON/OFF TIMER mode, time and set temperature (only for ON TIMER mode) can be set with WEEKLY TIMER. Other settings for ON TIMER are based on the settings just before the operation.
- Both WEEKLY TIMER and ON/OFF TIMER operation cannot be used at the same time. The ON/OFF TIMER operation has priority if it is set while WEEKLY TIMER is still active. The WEEKLY TIMER will go into standby state, and "WEEKLY" will disappear from the LCD.
  When ON/OFF TIMER is up, the WEEKLY TIMER will automatically become active.
- Only the time and set temperature set with the weekly timer are sent with the [◈].
  Set the weekly timer only after setting the operation mode, the fan strength, and the fan direction ahead of time.
- Shutting the breaker off, power failure, and other similar events will render operation of the indoor unit's internal clock inaccurate. Reset the clock.
- The [BACK] can be used only for the time and temperature settings.
  It cannot be used to go back to the reservation number.

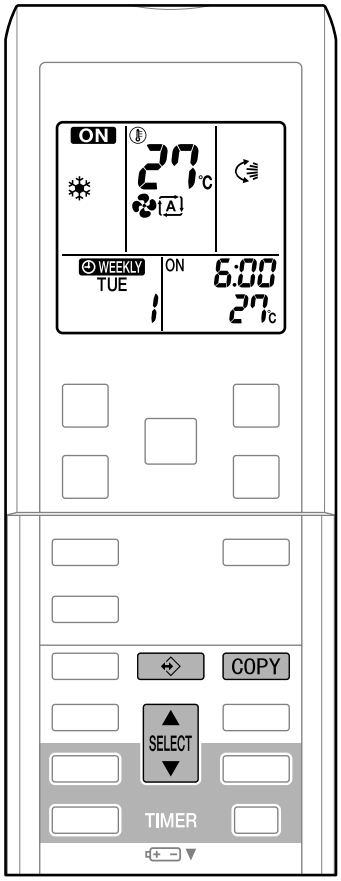
21

WEEKLY TIMER Operation

Copy mode

- A reservation made once can be copied another day of the week. The whole reservation of the selected day of the week will be copied.





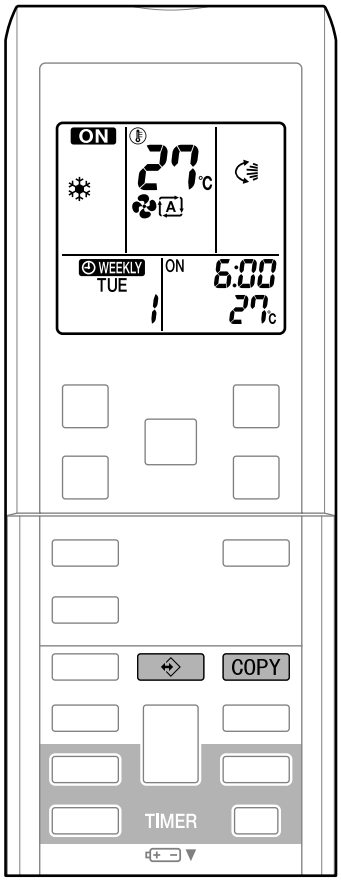
1. **Press** [⇔] **.**
2. **Press** [SELECT ▲▼] **to confirm the day of the week to be copied.**
3. **Press** [COPY] **to activate copy mode.**
   - The whole reservation of the selected day of the week will be copied.
4. **Press** [SELECT ▲▼] **to select the destination day of the week.**

5. Press COPY .

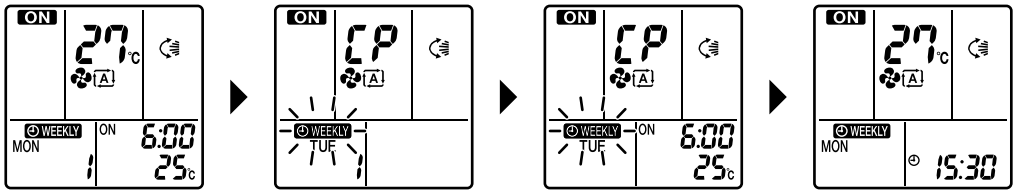
- The reservation will be copied to the selected day of the week. The whole reservation of the selected day of the week will be copied.
- To continue copying +settings to other days of the week, repeat step **4** and step **5**.

6. Press ⇔ to complete the setting.

- " WEEKLY " is displayed on the LCD and WEEKLY TIMER operation is activated.



Setting Displays



NOTE

■ **Note on COPY MODE**

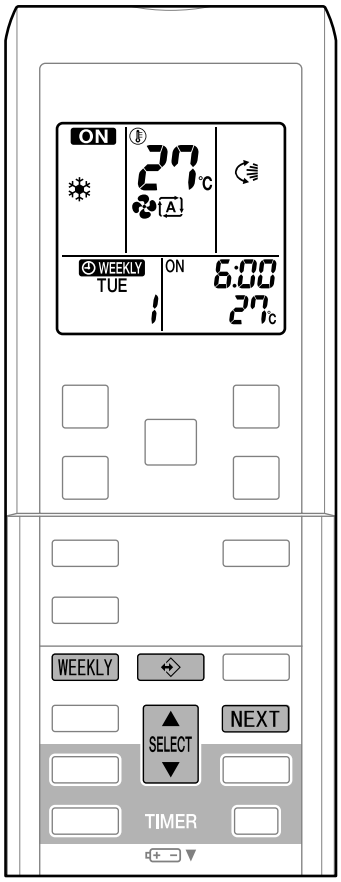
- The entire reservation of the source day of the week is copied in the copy mode. In the case of making a reservation change for any day of the week individually after copying the content of weekly reservations, press ⇔ and change the settings in the steps of setting mode. (page 19)

23

WEEKLY TIMER Operation

■ Confirming a reservation

• The reservation can be confirmed.



1. Press [⇔] .

• The day of the week and the reservation number of the current day will be displayed.

2. Press [SELECT] to select the day of the week and the reservation number to be confirmed.

• Pressing the [SELECT] displays the reservation details.

• To change the confirmed reserved settings, select the reservation number and press [NEXT] .
The mode is switched to setting mode. Go to setting mode step **4**. (page 19)

3. Press [⇔] to exit confirming mode.

• "WEEKLY" is displayed on the LCD and WEEKLY TIMER operation is activated.

• The TIMER lamp lights up.

Setting Displays

Normal Confirmation

■ To deactivate WEEKLY TIMER operation

4. Press [WEEKLY] while "WEEKLY" is displayed on the LCD.

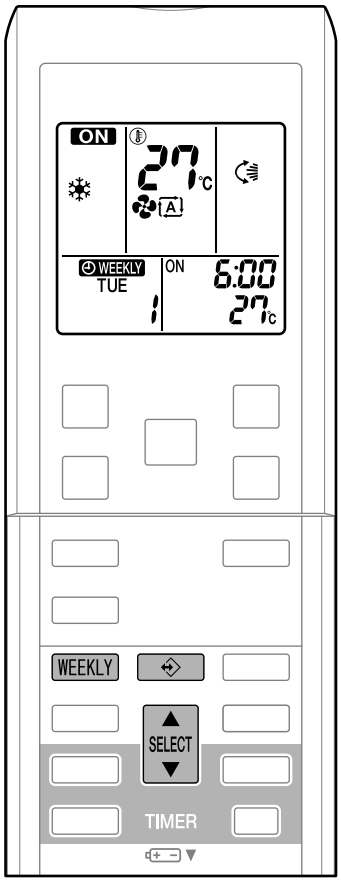
• The "WEEKLY" will disappear from the LCD.

• The TIMER lamp goes off.

• To reactivate the WEEKLY TIMER operation, press the [WEEKLY] again.

• If a reservation deactivated with [WEEKLY] is activated once again, the last reservation mode will be used.

■ To delete reservations



The individual reservation

- Refer to setting mode. (page 19)
  When selecting desired mode at step **4** in setting mode, select “blank”. The reservation will be deleted.

The reservations for each day of the week

- This function can be used for deleting reservations for each day of the week.

5. Press ◈ **.**

6. Select the day of the week to be canceled with SELECT **.**

7. Hold WEEKLY **for 5 seconds.**

- The reservation of the selected day of the week will be deleted.

All reservations

8. Hold WEEKLY **for 5 seconds while normal display.**

- Be sure to direct the remote control toward the main unit and check for a receiving tone.
- This operation is not effective while WEEKLY TIMER is being set.
- All reservations will be deleted.

Part 6
Service Diagnosis

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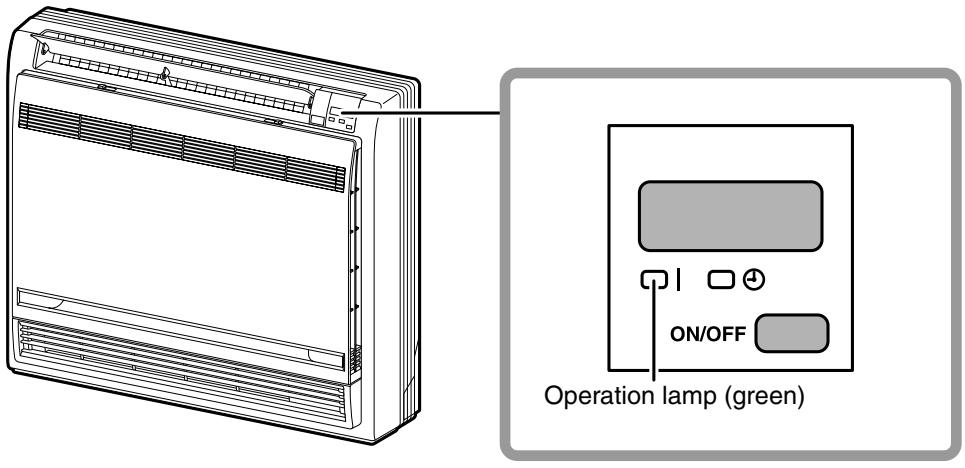
   5.1 How to Check 49

1. Troubleshooting with LED

The operation lamp blinks when any of the following situations is detected.

1. When a protection control is activated or when the thermistor malfunctions.
   → Conduct the diagnostic procedure described in the following pages.
2. When the settings of the operation mode are incompatible between the indoor unit and the hydrobox.
   → Refer to page 14 for detail.



(R12709)

2. Problem Symptoms and Measures

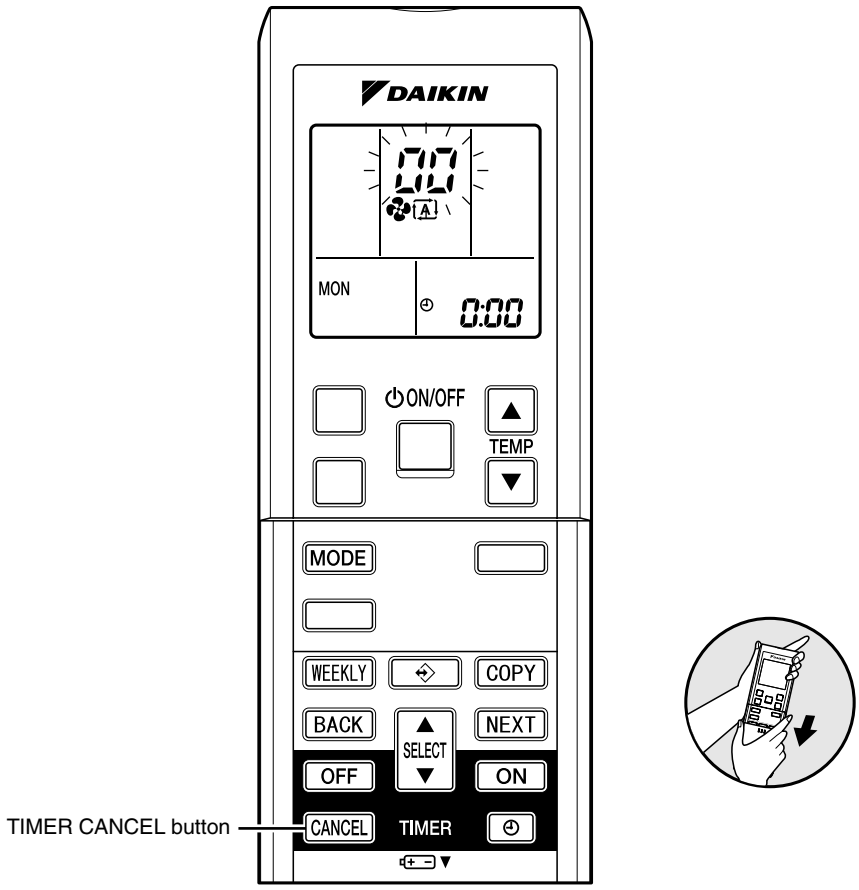
Symptom	Check Item	Details of Measure	Reference Page
The units does not operate.	Check the power supply.	Check to make sure that the rated voltage is supplied.	—
	Check the type of the outdoor unit.	Check to make sure that the outdoor unit is compatible with the indoor unit.	—
	Diagnose with remote controller indication.	—	44
	Check the remote controller addresses.	Check to make sure that address settings for the remote controller and indoor unit are correct.	79
Operation sometimes stops.	Check the power supply.	A power failure of 2 to 10 cycles stops air conditioner operation. (Operation lamp OFF)	—
	Diagnose with remote controller indication.	—	44
The unit operates but does not cool, or does not heat.	Check for wiring and piping errors in the connection between the indoor and outdoor units.	Correct the wiring and piping.	—
	Check for thermistor detection errors.	Check to make sure that the thermistor is mounted securely.	—
	Diagnose with remote controller indication.	—	44
Large operating noise and vibrations	Check the installation condition.	Check to make sure that the required spaces for installation (specified in the installation manual, etc.) are provided.	—

3. Service Check Function

3.1 ARC452 Series

Check Method 1

1. When the timer cancel button is held down for 5 seconds, "00" indication appears on the temperature display section.



< ARC452 Series >

(R12706)

2. Press the timer cancel button repeatedly until a long beep sounds.

■ The code indication changes in the sequence shown below.

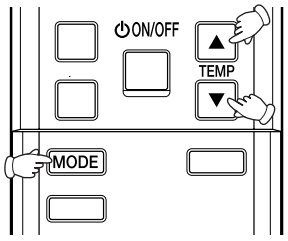
No.	Code	No.	Code	No.	Code
1	00	13	C7	25	U8
2	U4	14	A3	26	UH
3	L5	15	H8	27	P4
4	E6	16	H9	28	L3
5	H6	17	C9	29	L4
6	H0	18	C4	30	H7
7	A6	19	C5	31	U2
8	E7	20	J3	32	EA
9	U0	21	J6	33	AH
10	F3	22	E5	34	FA
11	A5	23	A1	35	H1
12	F6	24	E1	36	P9

Note:

1. A short beep "pi" and two consecutive beeps "pi pi" indicate non-corresponding codes.
2. To return to the normal mode, hold the timer cancel button down for 5 seconds. When the remote controller is left untouched for 60 seconds, it also returns to the normal mode.

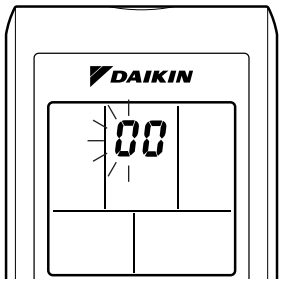
Check Method 2

1. Press the 3 buttons (TEMP▲, TEMP▼, MODE) at the same time.



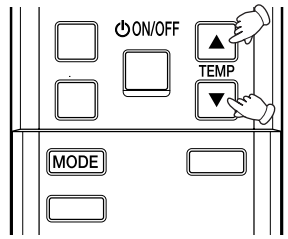
(R12741)

The figure of the ten's place blinks.



(R8382)

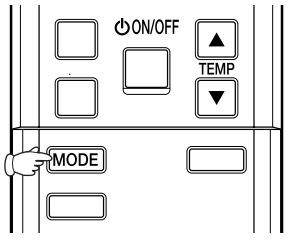
2. Press the TEMP▲ or ▼ button and change the figure until you hear the sound of "beep" or "pi pi".



(R12742)

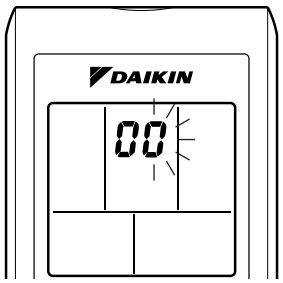
3. Diagnose by the sound.
   ★"pi" : The figure of the ten's place does not accord with the error code.
   ★"pi pi" : The figure of the ten's place accords with the error code but the one's not.
   ★"beep" : The both figures of the ten's and one's place accord with the error code.
   (The figures indicated when you hear the "beep" sound are error code. →Refer to page 44.)

4. Press the MODE button.



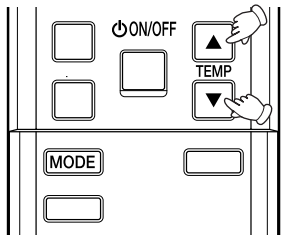
(R12743)

The figure of the one's place blinks.



(R8385)

5. Press the TEMP▲ or ▼ button and change the figure until you hear the sound of “beep”.

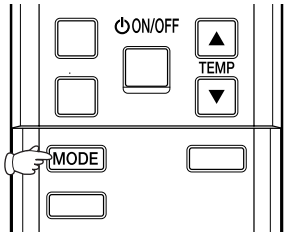


(R12742)

6. Diagnose by the sound.
   ★“pi” : The figure of the ten’s place does not accord with the error code.
   ★“pi pi” : The figure of the ten’s place accords with the error code but the one’s not.
   ★“beep” : The both figures of the ten’s and one’s place accord with the error code.

7. Determine the error code.
   The figures indicated when you hear the “beep” sound are error code.
   (Error codes and description → Refer to page 44.)

8. Press the MODE button to return to the normal mode.



(R12743)

Note: When the remote controller is left untouched for 60 seconds, it returns to the normal mode.

4. Troubleshooting

4.1 Error Codes and Description

Error Codes	Description	Reference Page
A1	Indoor unit PCB abnormality	45
A6	Fan motor (DC motor) or related abnormality	46
C4	Indoor heat exchanger thermistor or related abnormality	48
C9	Room temperature thermistor or related abnormality	48

4.2 Indoor Unit PCB Abnormality

Remote Controller Display

A1

Method of Malfunction Detection

Evaluation of zero-cross detection of power supply by the indoor unit PCB.

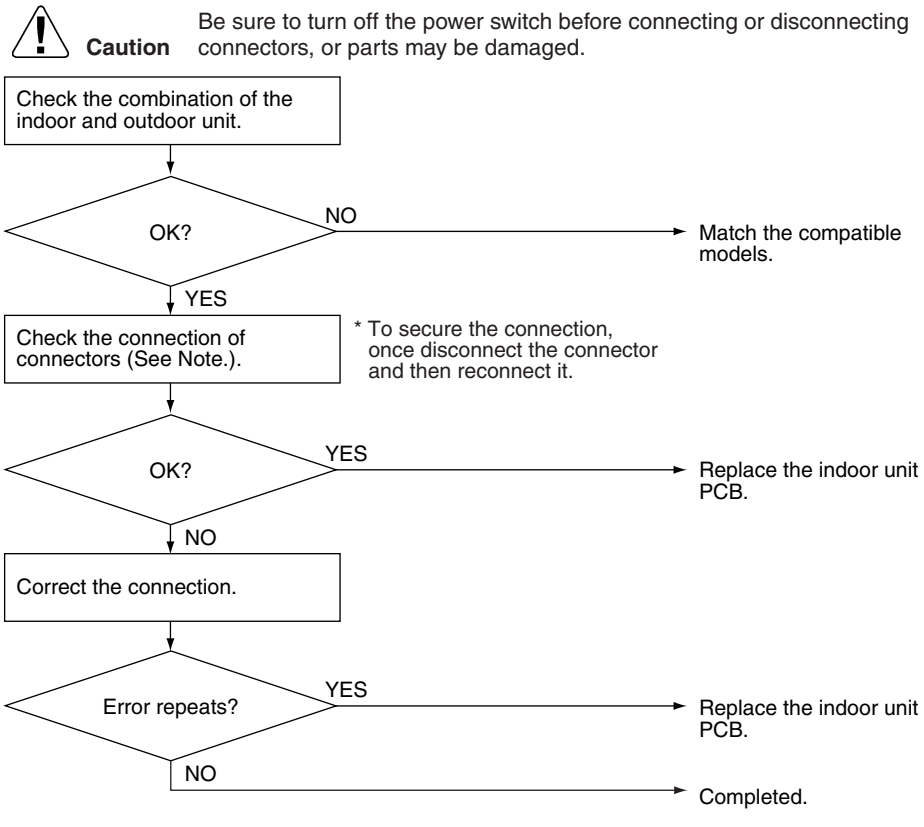
Malfunction Decision Conditions

There is no zero-cross detection in approximately 10 seconds.

Supposed Causes

- Wrong models interconnected
- Defective indoor unit PCB
- Disconnection of connector

Troubleshooting



Note: Check the following connector.

Model Type	Connector
Floor Standing Type	Terminal board ~ Control PCB

4.3 Fan Motor (DC Motor) or Related Abnormality

Remote Controller Display

A6

Method of Malfunction Detection

The rotation speed detected by the Hall IC during fan motor operation is used to determine abnormal fan motor operation.

Malfunction Decision Conditions

The detected rotation speed does not reach the demanded rotation speed of the target tap, and is less than 50% of the maximum fan motor rotation speed.

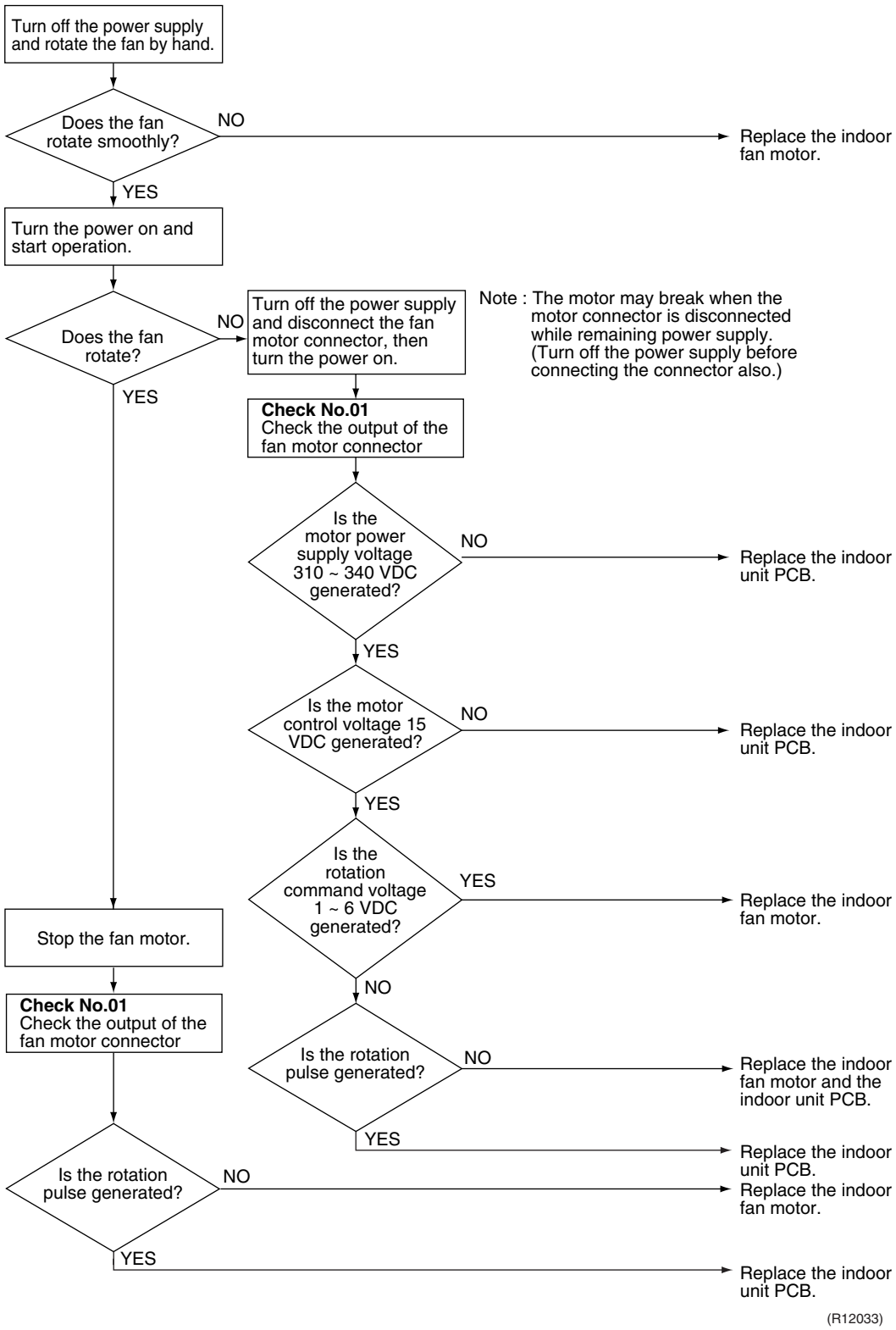
Supposed Causes

- Layer short inside the fan motor winding
- Breaking of wire inside the fan motor
- Breaking of the fan motor lead wires
- Defective capacitor of the fan motor
- Defective indoor unit PCB

Troubleshooting

Check No.01
Refer to P.49

Caution Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.


Turn off the power supply and rotate the fan by hand.
Does the fan rotate smoothly?
NO
Replace the indoor fan motor.
YES
Turn the power on and start operation.
Does the fan rotate?
NO
Turn off the power supply and disconnect the fan motor connector, then turn the power on.
Note : The motor may break when the motor connector is disconnected while remaining power supply. (Turn off the power supply before connecting the connector also.)
YES
Check No.01
Check the output of the fan motor connector
Is the motor power supply voltage 310 ~ 340 VDC generated?
NO
Replace the indoor unit PCB.
YES
Is the motor control voltage 15 VDC generated?
NO
Replace the indoor unit PCB.
YES
Is the rotation command voltage 1 ~ 6 VDC generated?
YES
Replace the indoor fan motor.
NO
Stop the fan motor.
Check No.01
Check the output of the fan motor connector
Is the rotation pulse generated?
NO
Replace the indoor fan motor and the indoor unit PCB.
YES
Replace the indoor unit PCB.
Is the rotation pulse generated?
NO
Replace the indoor fan motor.
YES
Replace the indoor unit PCB.

(R12033)

4.4 Thermistor or Related Abnormality (Indoor Unit)

Remote Controller Display

C4, C9

Method of Malfunction Detection

The temperatures detected by the thermistors determine thermistor errors.

Malfunction Decision Conditions

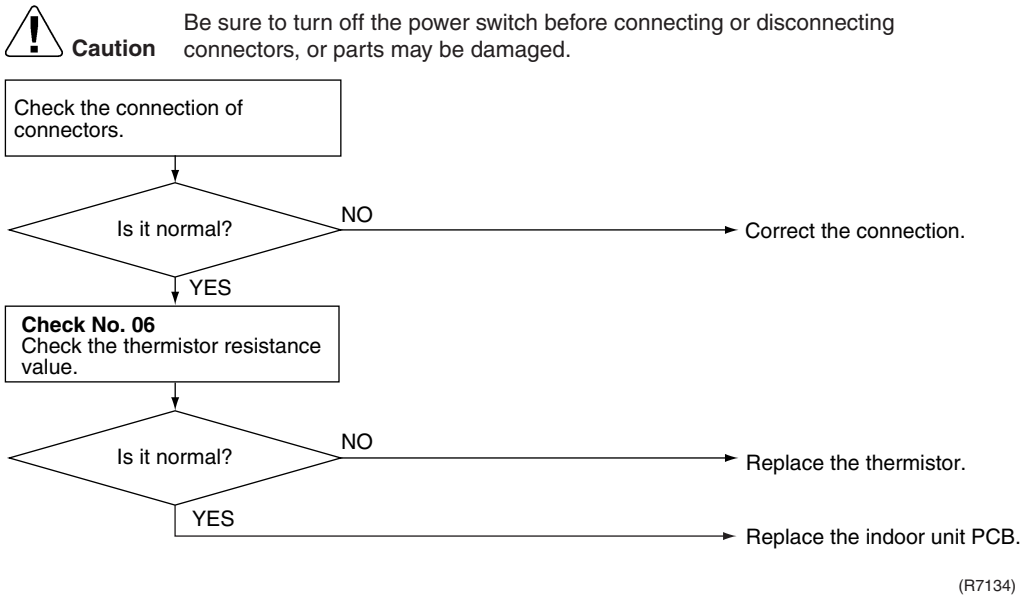
The thermistor input is more than 4.96 V or less than 0.04 V during compressor operation.

Supposed Causes

- Disconnection of connector
- Defective thermistor
- Defective indoor unit PCB

Troubleshooting

Check No.06
Refer to P.50



C4 : Indoor heat exchanger thermistor
C9 : Room temperature thermistor

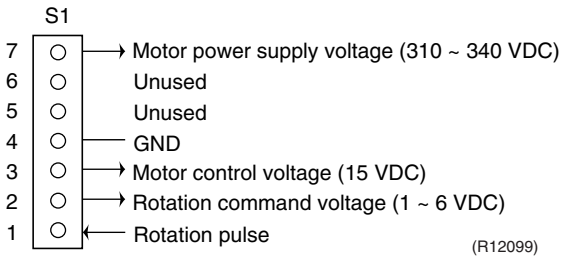
5. Check

5.1 How to Check

5.1.1 Fan Motor Connector Output Check

Check No.01

1. Check the connection of connector.
2. Check the motor power supply voltage output (pins 4 - 7).
3. Check the motor control voltage (pins 4 - 3).
4. Check the rotation command voltage (pins 4 - 2).
5. Check the rotation pulse (pins 4 - 1).

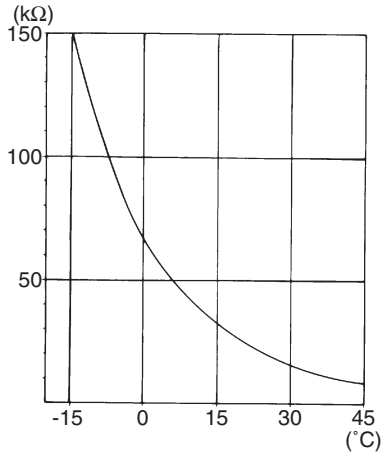


5.1.2 Thermistor Resistance Check

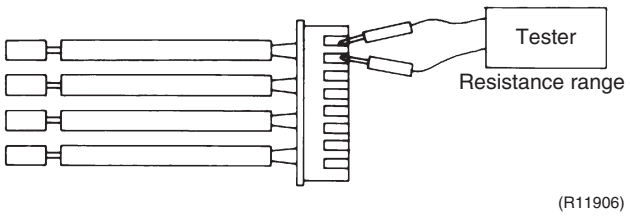
Check No.06 Disconnect the connectors of the thermistors from the PCB, and measure the resistance of each thermistor using tester.
The relationship between normal temperature and resistance is shown in the table and the graph below.

Thermistor temperature (°C)	Resistance (kΩ)
–20	211.0
–15	150.0
–10	116.5
–5	88.0
0	67.2
5	51.9
10	40.0
15	31.8
20	25.0
25	20.0
30	16.0
35	13.0
40	10.6
45	8.7
50	7.2

(R25°C = 20 kΩ, B = 3950 K)

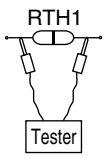


(R11905)



(R11906)

- For the models in which the thermistor is directly mounted on the PCB, disconnect the connector for the PCB and measure.



(R3460)

Part 7
Removal Procedure

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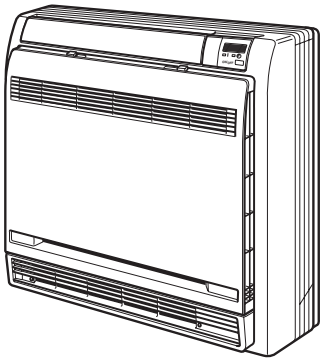
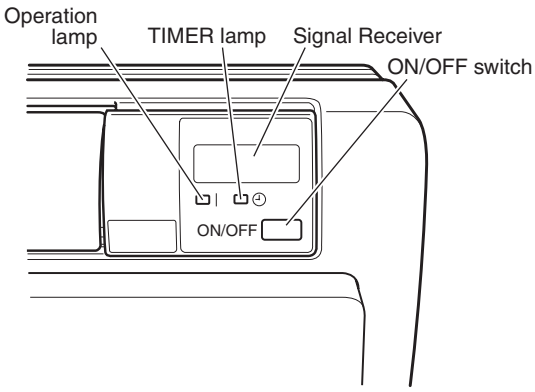
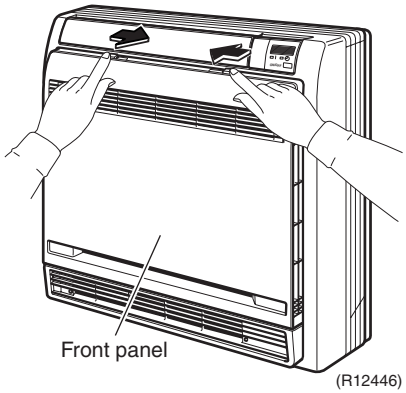
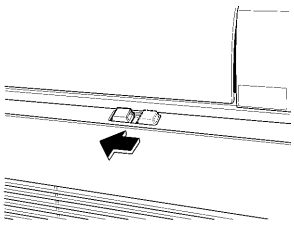
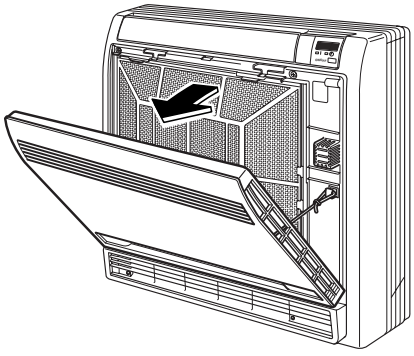
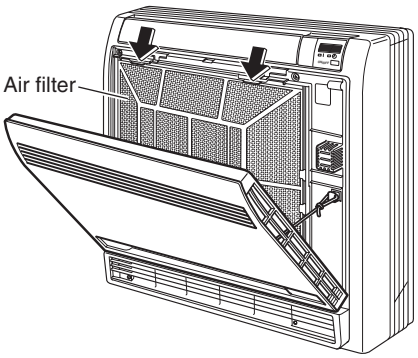
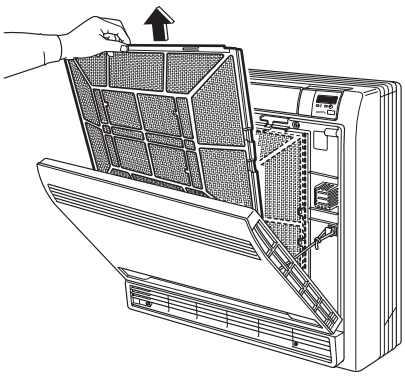
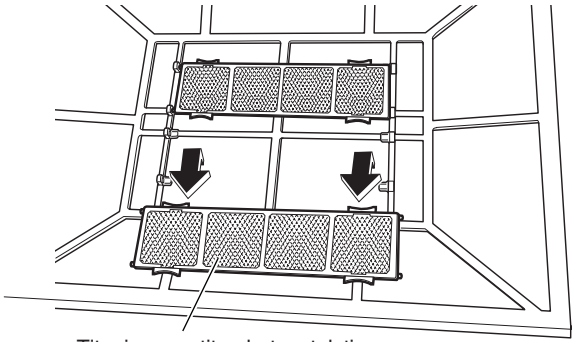
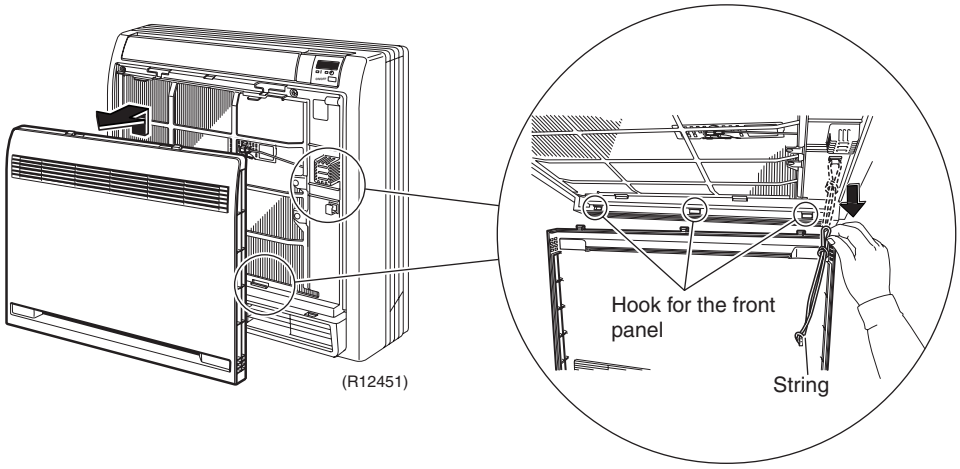
1.9 Removal of Fan Rotor / Fan Motor.....72

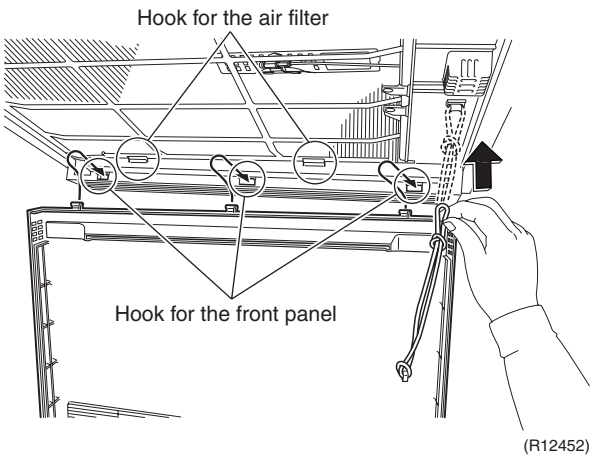
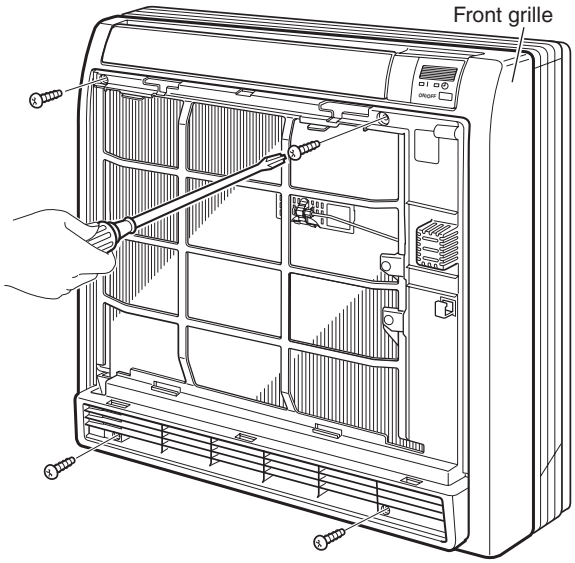
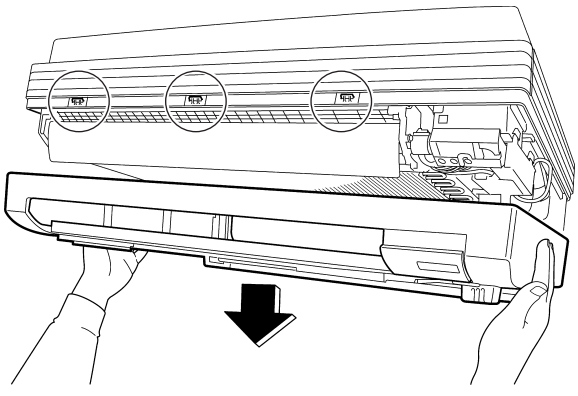
1. Indoor Unit

1.1 Removal of Air Filter / Front Panel / Front Grille

Procedure **Warning** **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

Step	Procedure	Points
1. External appearance	 (R12437)  (R12438)	
2. Remove the front panel. 1 Unfasten the 2 hooks on the top of the front panel.	 (R12446)	 (R6768) ■ Slide the right and the left hooks to the center.
2 Open the front panel.	 (R12447)	

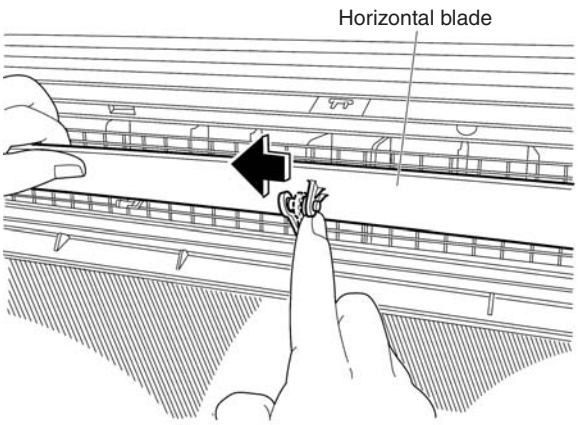
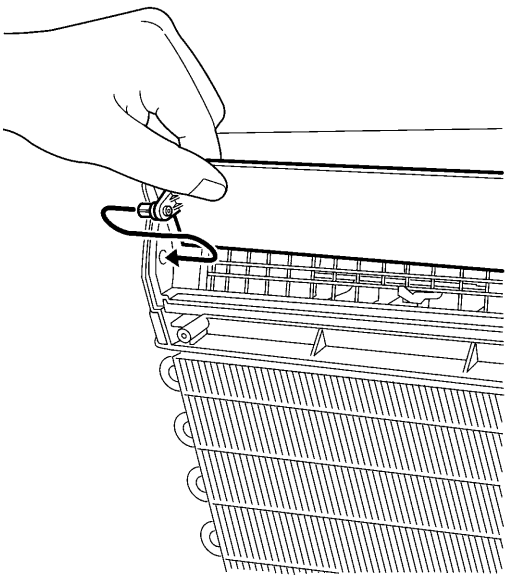
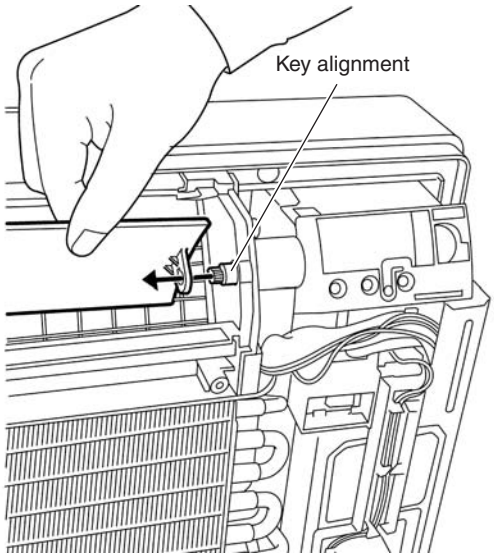
Step	Procedure		Points
3	Press and unfasten the 2 hooks of the air filter.	 (R12448)	
4	Pull out the air filter.	 (R12449)	
5	Remove the Titanium apatite photocatalytic air-purifying filter ASSY.	 (R12450)	■ The Titanium apatite photocatalytic air-purifying filter ASSY is attached to the back of the air filter.
6	Release the string from the hook. Lift up the front panel to unfasten the 3 hooks at the bottom and then remove the front panel.	 (R12451)	

Step	Procedure		Points
		 (R12452)	■ When installing the air filter, catch the 2 hooks at the bottom. When installing the front panel, catch the 3 hooks of the front grille and hook the string to prevent the front panel from dropping.
7	Remove the 4 screws from the front grille.	 (R12453)	
8	Pull out the front grille and remove it.	 (R6775)	■ Open the horizontal blade to remove the front grille smoothly. ■ There are 3 hooks on the top of the main unit.

1.2 Removal of Horizontal Blade

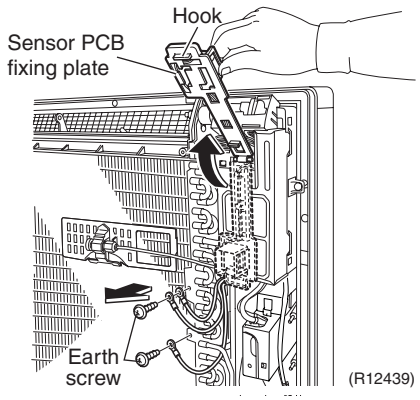
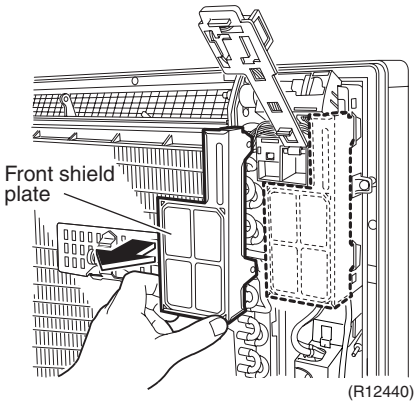
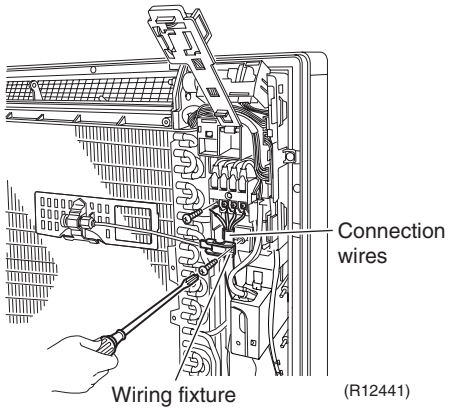
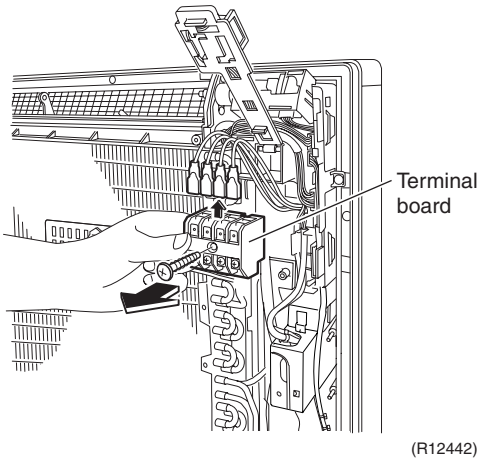
Procedure

Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

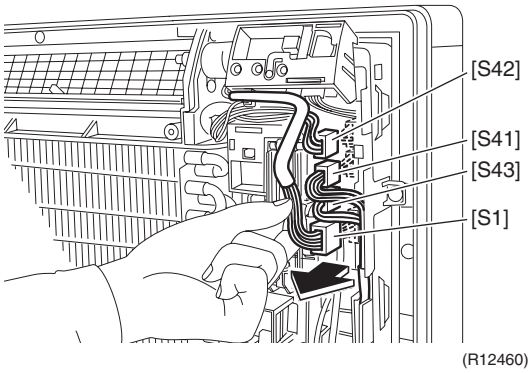
Step	Procedure		Points
1 2	Open the horizontal blade. Release the center shaft.	 (R6778)	
3	Bend the horizontal blade to release the right and the left shafts and remove the horizontal blade.	 (R6779)  (R6780)	■ Release the left shaft first and then release the right shaft from the key alignment.

1.3 Removal of Main Electrical Box / Sub Electrical Box

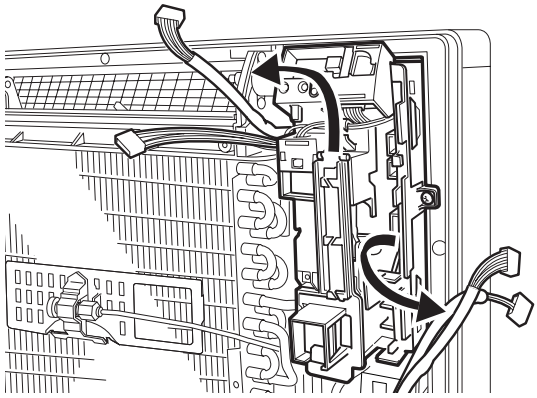
Procedure **Warning** **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

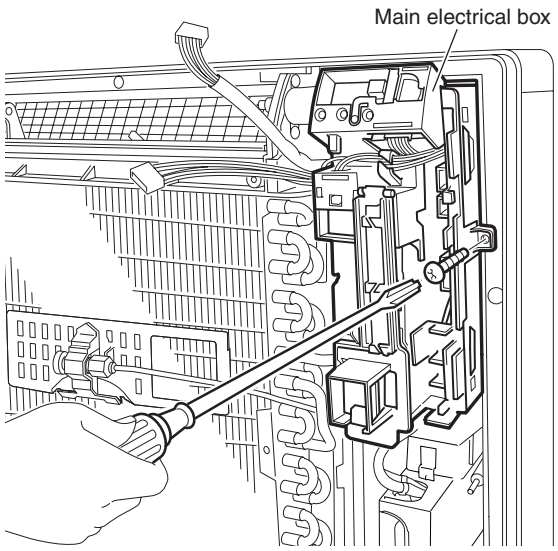
Step	Procedure		Points
1 2	Remove the 2 earth screws. Unfasten the hook and open the sensor PCB fixing plate.		
3	Remove the front shield plate.		
4	Remove the 1 screw of the wiring fixture and remove the 4 screws of the connection wires.		
5	Remove the screw and remove the terminal board.		

Step	Procedure	Points
6	Disconnect the connectors [S1] [S41] [S42].	■ [S1]: fan motor [S41]: lower air outlet motor [S42]: swing motor [S43]: Sub PCB
7	Release the harnesses.	
8	Remove the screw of the main electrical box.	■ The sub electrical box is screwed to the bottom frame at the back.
9	Release the wiring from the clamp. Remove the screw of the sub electrical box.	

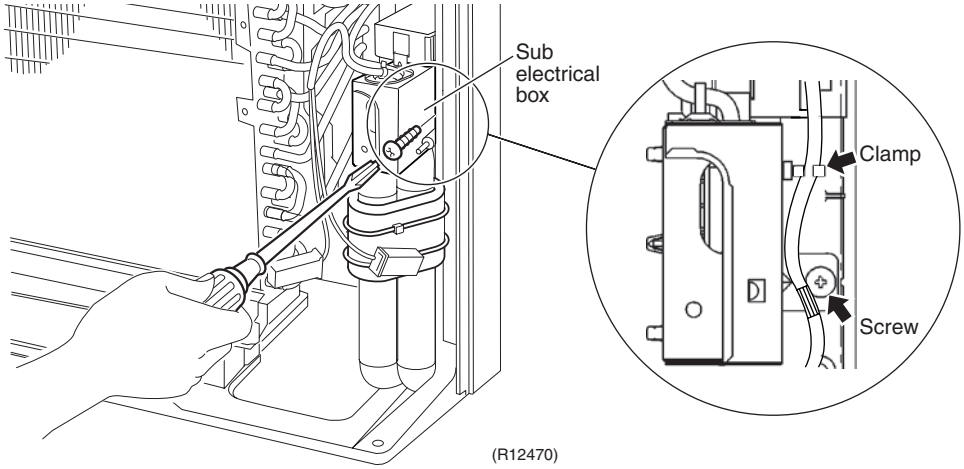


(R12460)

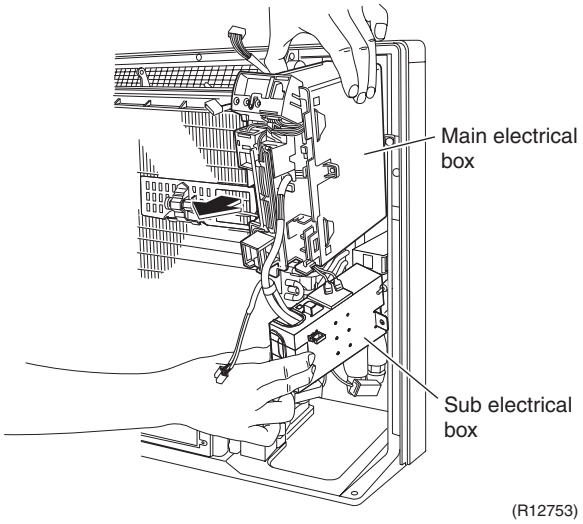
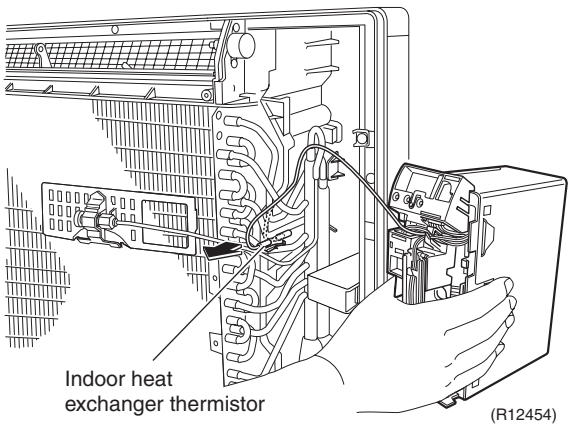

(R12461)



(R12462)

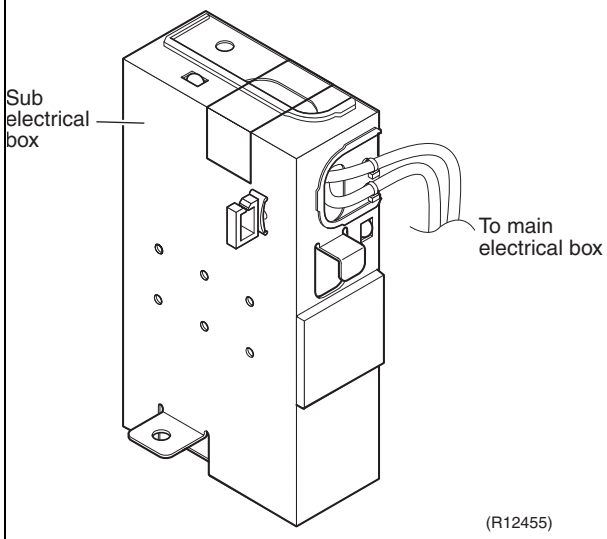
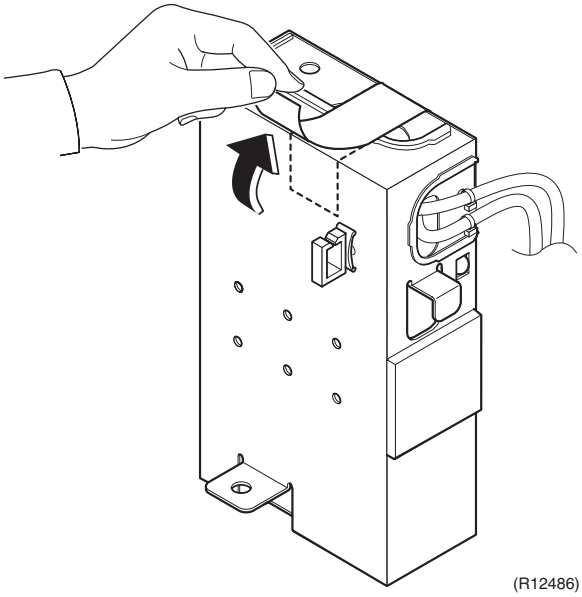
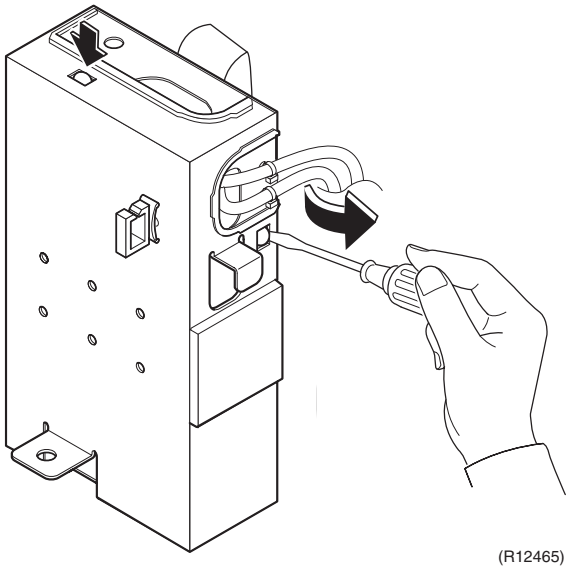


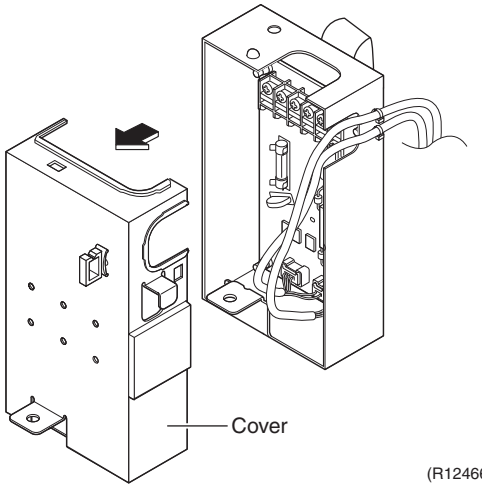
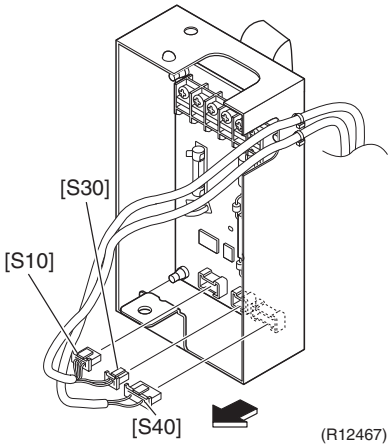
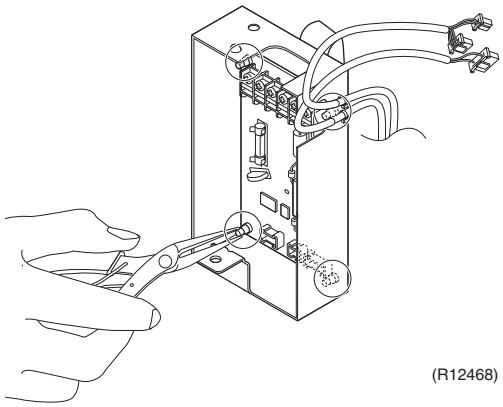
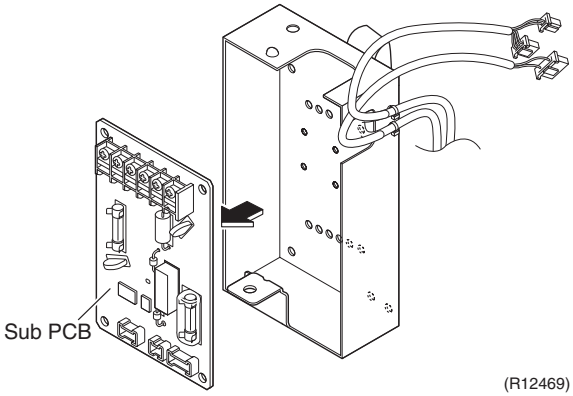
(R12470)

Step	Procedure		Points
10	Remove the main electrical box and the sub electrical box.		
11	Pull out the indoor heat exchaneopger thermistor.		

1.4 Removal of PCB from Sub Electrical Box

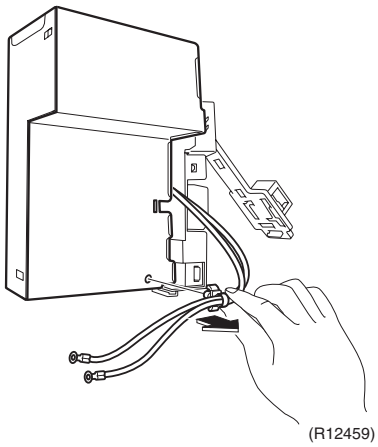
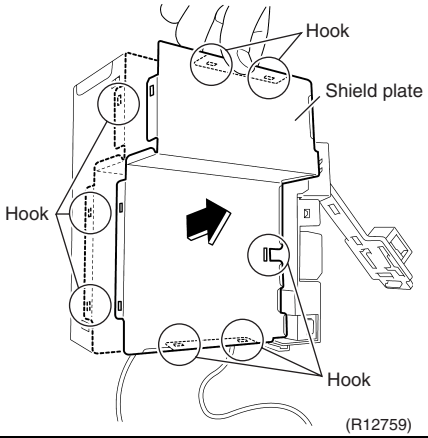
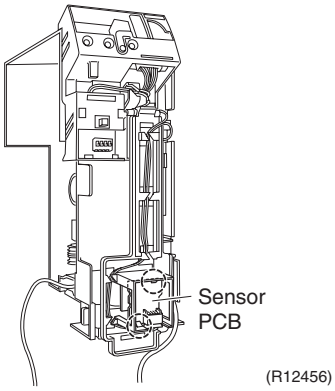
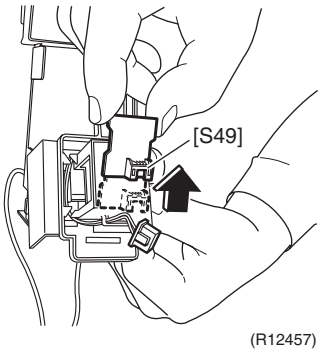
Procedure **Warning** **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

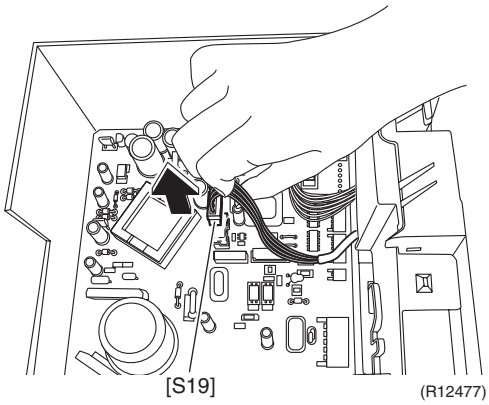
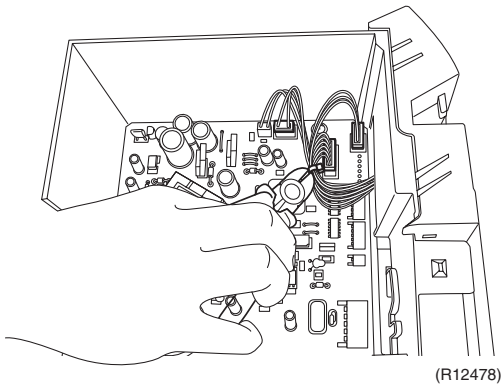
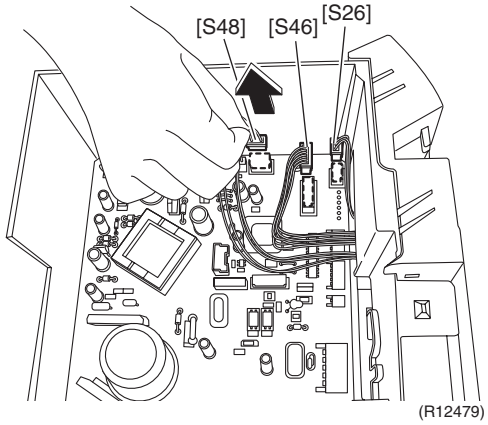
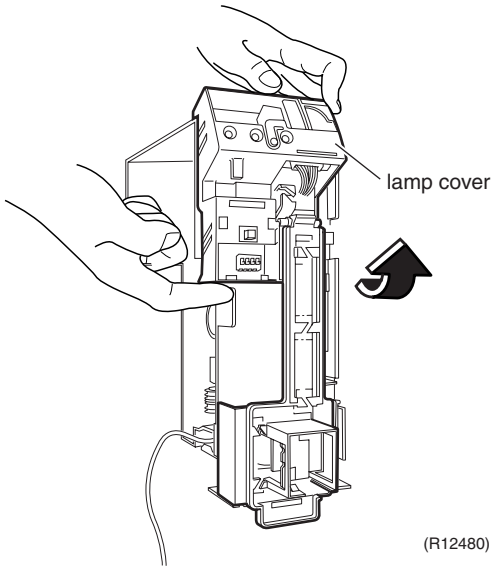
Step	Procedure		Points
1	External appearance of the sub electrical box.		
2	Peel the tape.		
3	Unfasten the 2 hooks.		

Step	Procedure		Points
4	Open the cover.	 (R12466)	
5	Disconnect the connectors [S10] [S30] [S40].	 (R12467)	■ [S10] [S30]: control PCB [S40]: terminal board
6	Detach the 4 spacer with pliers.	 (R12468)	
7	Remove the sub PCB.	 (R12469)	■ Refer to page 7 for detail.

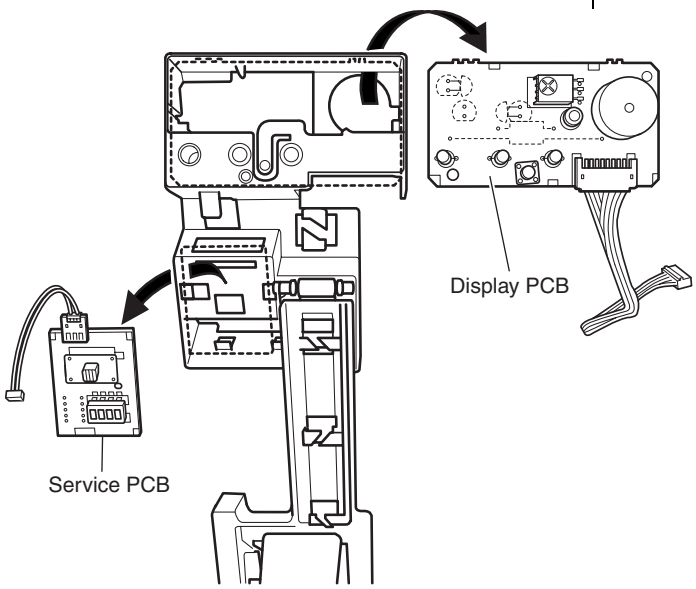
1.5 Removal of PCB from Main Electrical Box

Procedure **Warning** **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

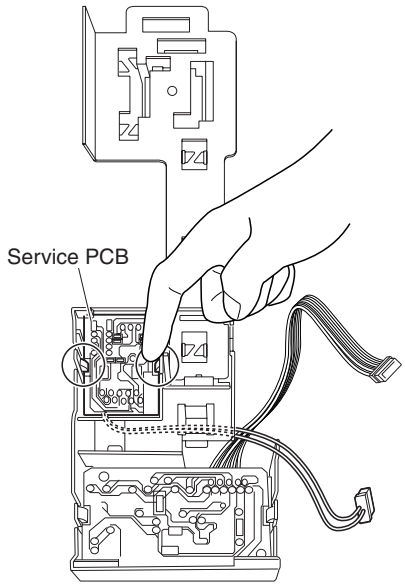
Step	Procedure		Points
1. Remove the shield plate.			
1	Pull out the clamp.	 (R12459)	
2	Unfasten the 8 hooks and remove the shield plate.	 (R12759)	
2. Remove the PCBs.			
1	Unfasten the 2 hooks of the sensor PCB.	 (R12456)	
2	Disconnect the connector [S49] and remove the sensor PCB.	 (R12457)	■ [S49]: control PCB ■ Refer to page 7 for detail.

Step	Procedure		Points
3	Disconnect the connector [S19].	 (R12477)	■ [S19]: sub PCB
4	Cut the clamp.	 (R12478)	
5	Disconnect the connectors [S26] [S46] [S48].	 (R12479)	■ [S26]: service PCB [S46]: display PCB [S48]: sensor PCB
6	Open and remove the lamp cover.	 (R12480)	

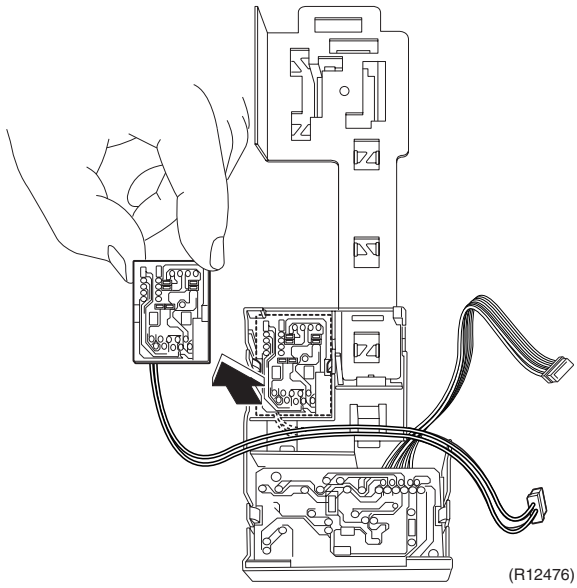
Step	Procedure	Points
7	The figure shows the layout of the service PCB and the display PCB. They are positioned at the back of the lamp cover.	
8	Unfasten the 2 hooks of the service PCB.	
9	Remove the service PCB.	

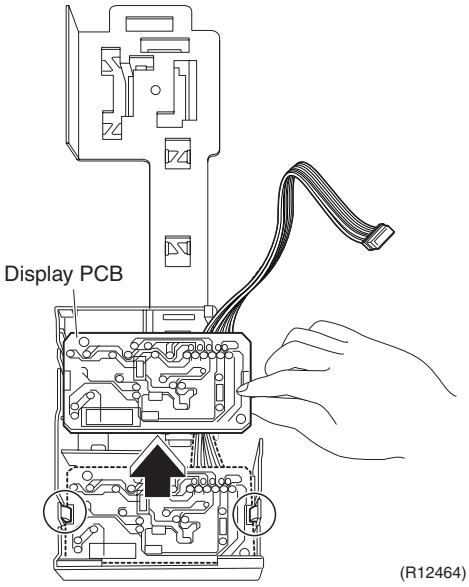
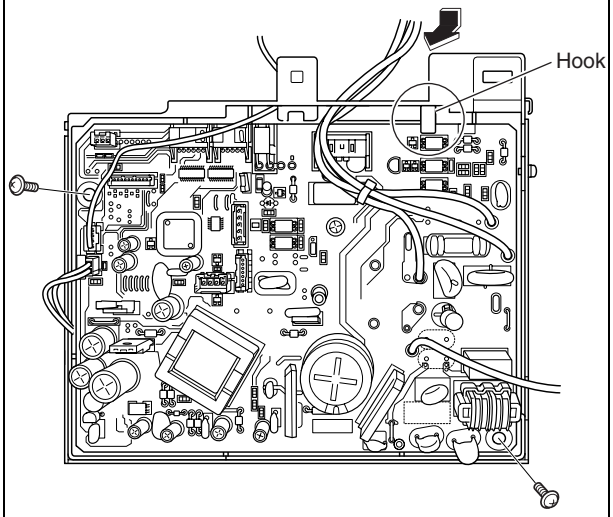
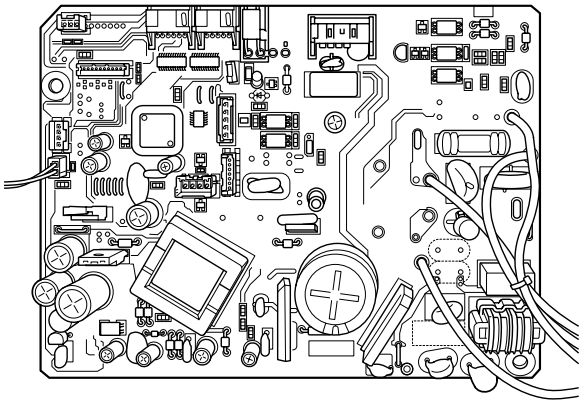


(R12471)



(R12475)

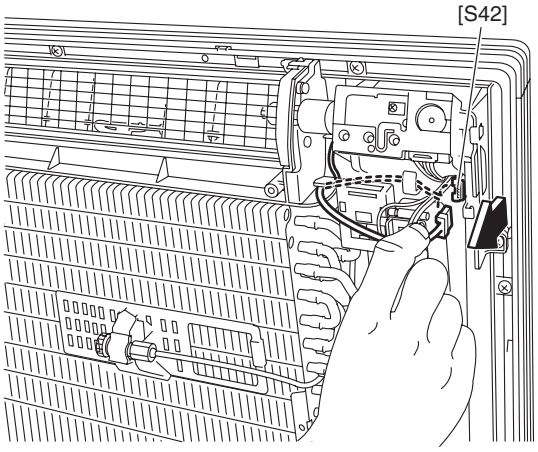
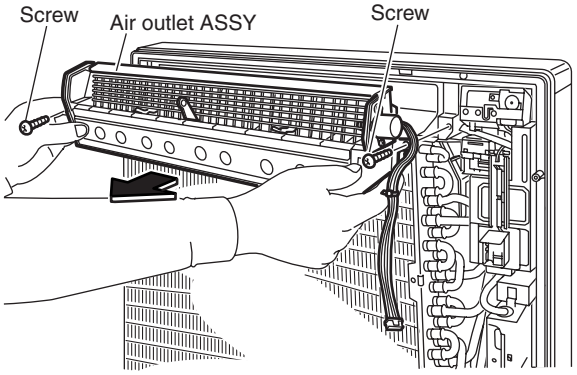
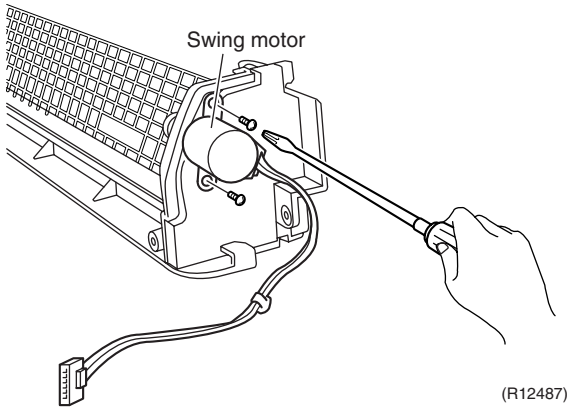
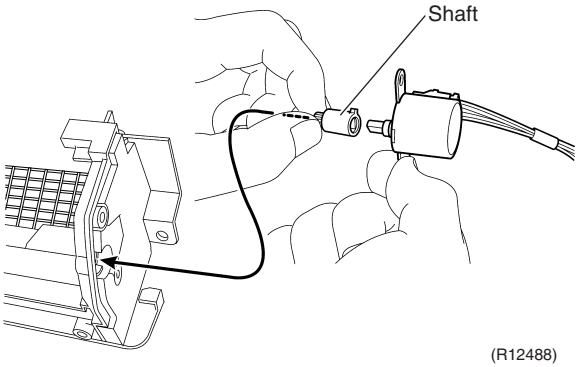

(R12476)

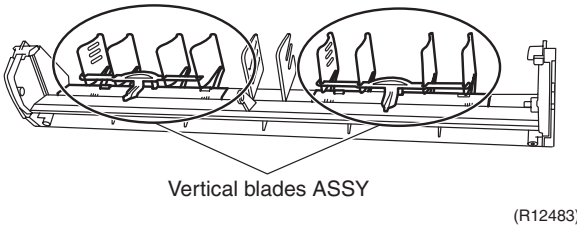
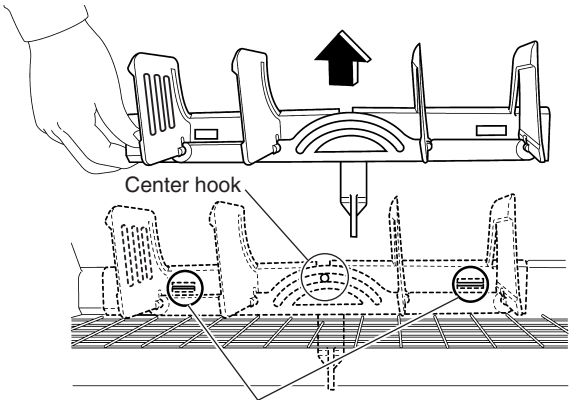
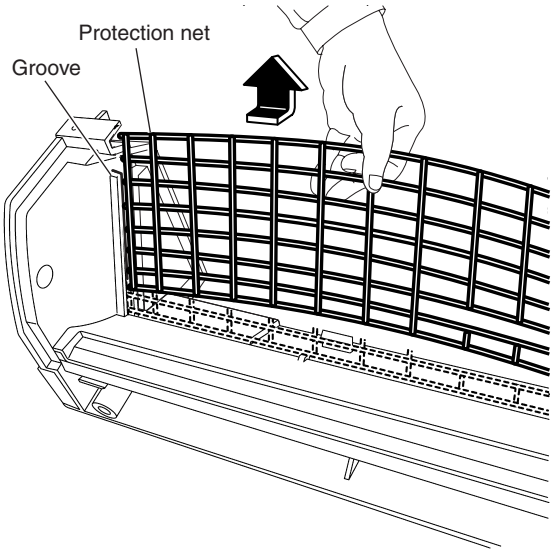
Step	Procedure		Points
10	Unfasten the 2 hooks and remove the display PCB.	 (R12464)	
11	Remove the 2 screws of the control PCB.		
12	Unfasten the hook and remove the control PCB.	 (R12472)	■ Refer to page 7 for detail.
		 (R12474)	

1.6 Removal of Upper Vertical Blades

Procedure

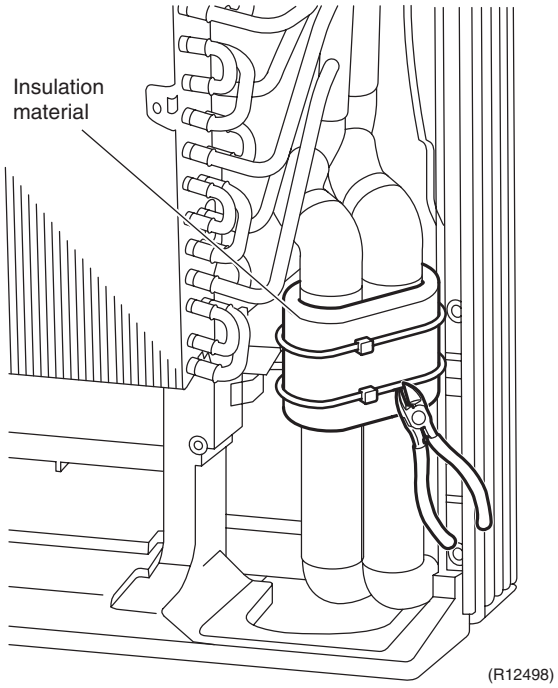
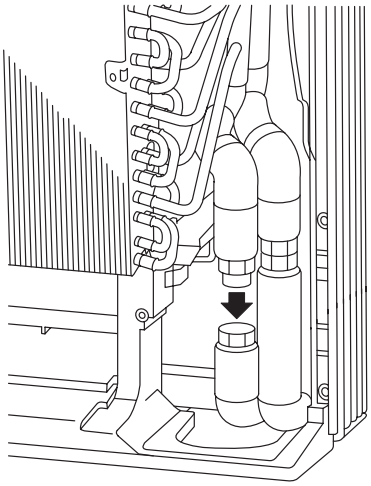
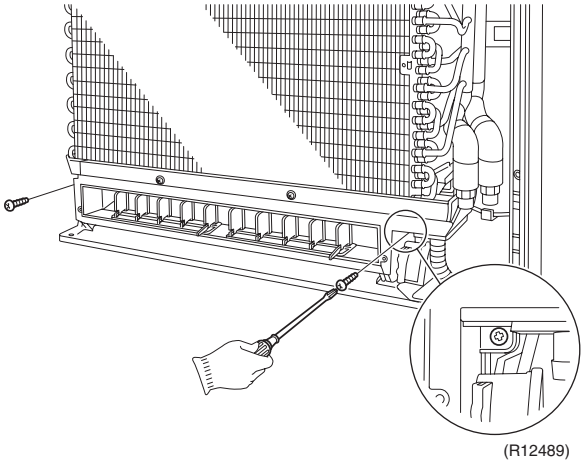
Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

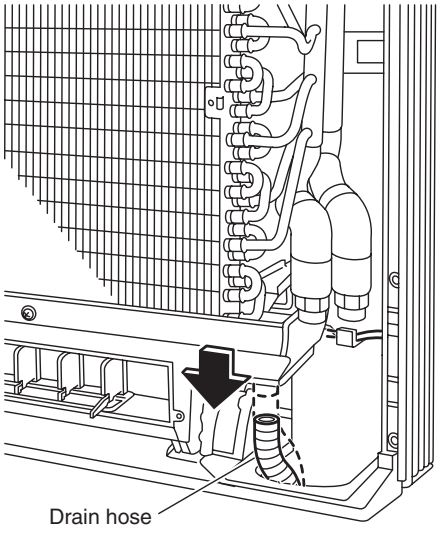
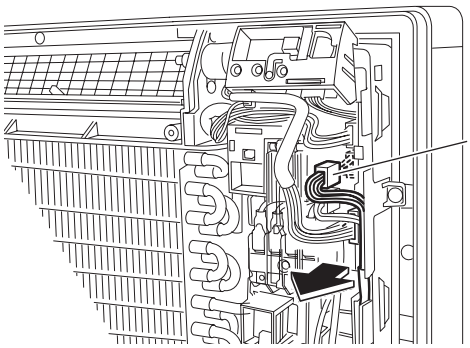
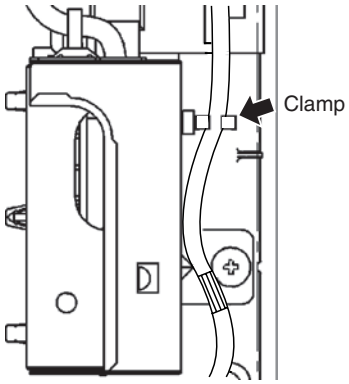
Step	Procedure		Points
1	Disconnect the connector [S42] and release the harness from the hook.	 (R12482)	■ [S42]: swing motor
2	Remove the 2 screws and remove the air outlet ASSY.	 (R12481)	
3	Remove the 2 screws and remove the swing motor.	 (R12487)  (R12488)	

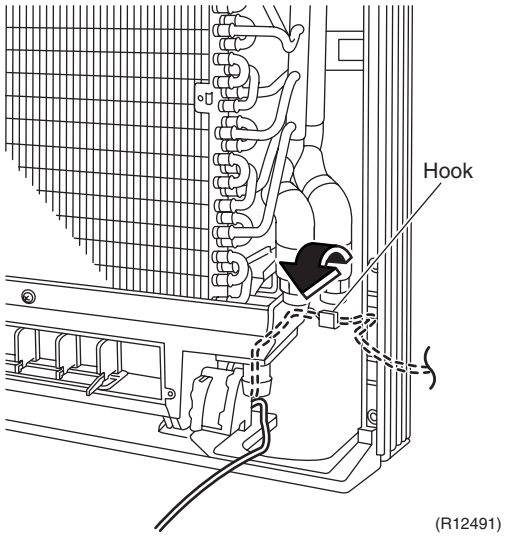
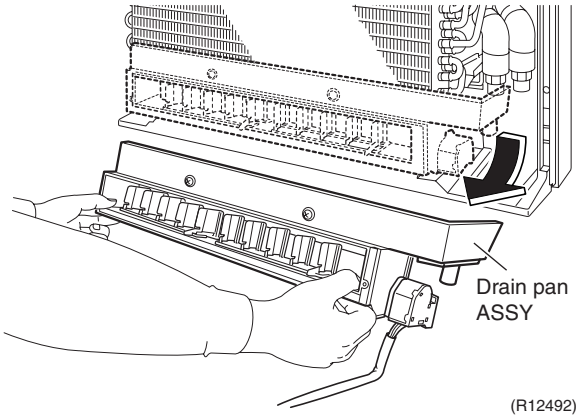
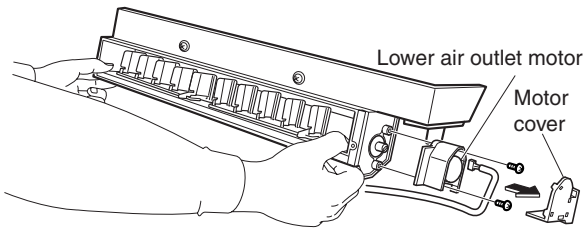
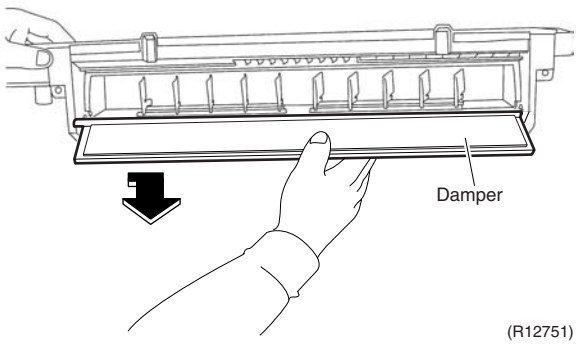
Step	Procedure		Points
4	The air outlet ASSY has 2 vertical blades ASSYs.	 (R12483)	
5	Unfasten the 2 hooks and remove the vertical blades ASSY.	 (R12484)	
6	Slide the protection net along the right and the left grooves and remove it.	 (R12485)	

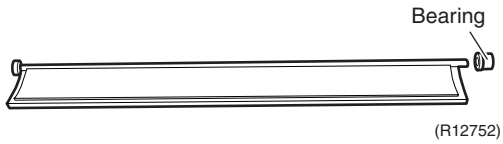
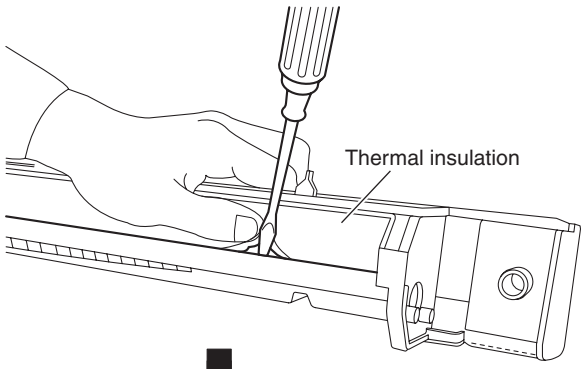
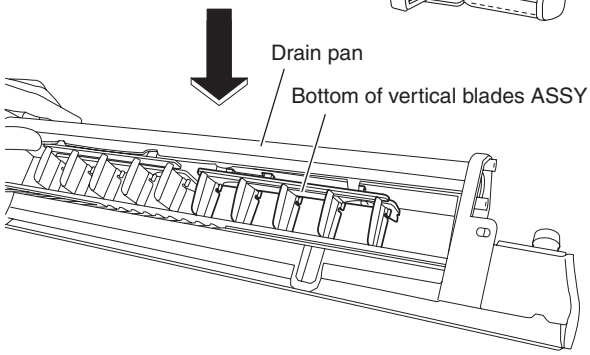
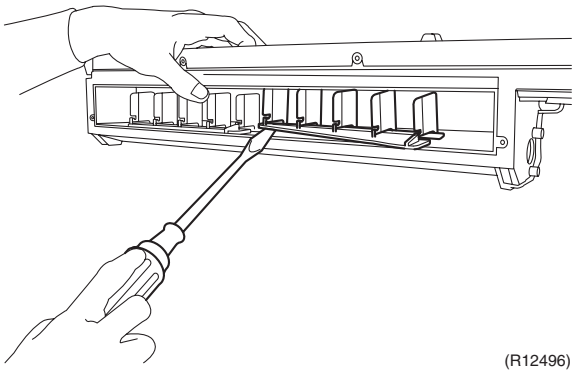
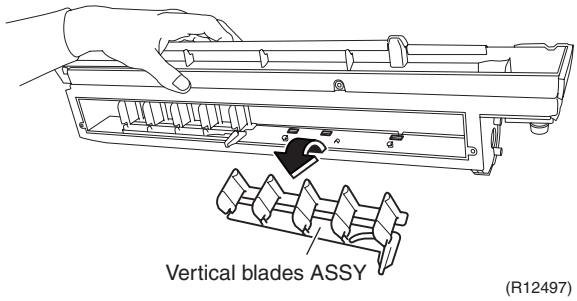
1.7 Removal of Lower Vertical Blades

Procedure **Warning** **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

Step	Procedure	Points
1	Cut the 2 clamps.  (R12498)	
2	Disconnect the pipings.  (R12499)	
3	Remove the 2 screws.  (R12489)	

Step	Procedure		Points
4	Disconnect the drain hose.	 (R12490)	■ Be careful not to wet the floor with drain.
5	Disconnect the connector [S41].	 (R12754)	■ [S41]: lower air outlet motor
6	Release the harness from the clamp.	 (R12748)	

Step	Procedure		Points
7	Release the harness from the hook.	 (R12491)	
8	Pull out the drain pan ASSY.	 (R12492)	
9	Remove the motor cover. Remove the 2 screws and remove the lower air outlet motor.	 (R12493)	
10	Slide the damper to the opposite side of the motor and pull it out.	 (R12751)	

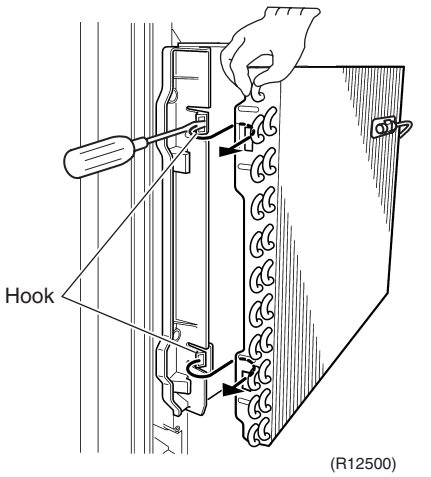
Step	Procedure		Points
11	Remove the bearing.	 (R12752)	
12	Move the thermal insulation slightly and press the 2 hooks undereath with a flat screwdriver.		
13	The figure shows the appearance after pressing the 2 hooks (Appearance from rear side). You can see the bottom of the vertical blades ASSY is detached from the drain pan.	 (R12495)	
14	Unfasten the 3 hooks (from front side) with a flat screwdriver.	 (R12496)	
15	Remove the vertical blades ASSY.	 (R12497)	

1.8 Removal of Indoor Heat Exchanger

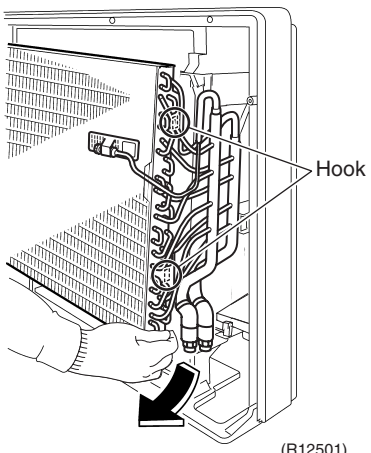
Procedure

Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

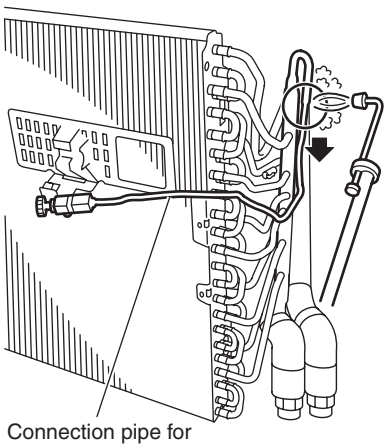
Step	Procedure	Points
1	Unfasten the 2 hooks on the left side of the indoor heat exchanger.	
2	Unfasten the 2 hooks on the right side and remove the indoor heat exchanger.	
3	Heat up the blazed part to disconnect the connection pipe for air purging.	



(R12500)



(R12501)



(R12502)

Caution
When removing or reassembling the indoor heat exchanger, be sure to wear gloves or wrap it with cloth before proceeding to the work. (You may be injured by the fins.)

Warning
Be careful not to get yourself burnt with the pipes and other parts that are heated by the gas brazing machine.

In case of difficulty with gas brazing machine

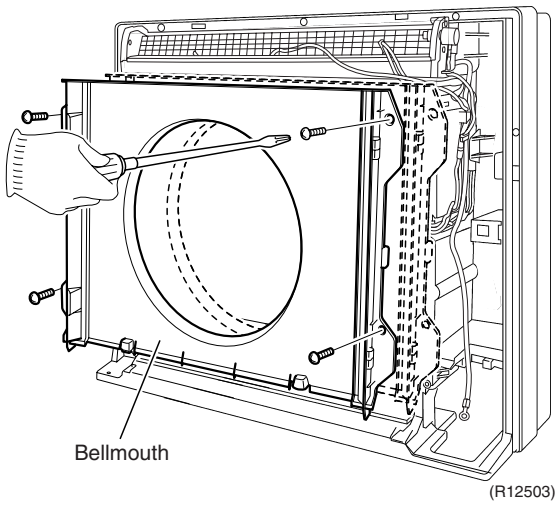
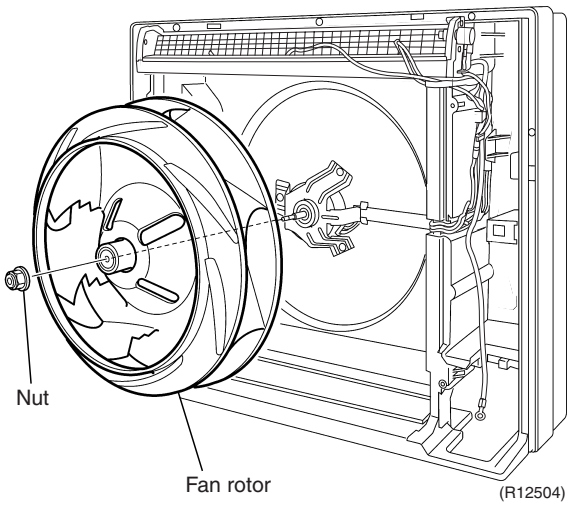
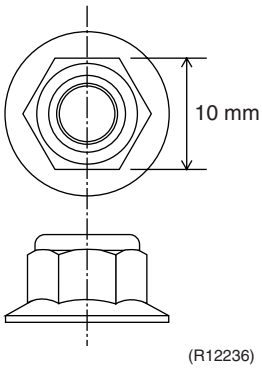
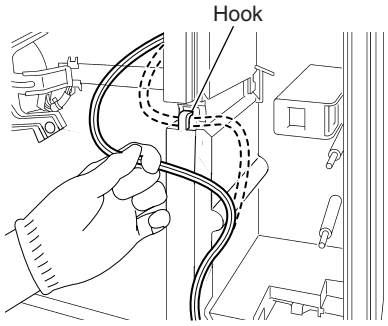
1. Disconnect the brazed part where is easy to disconnect and restore.
2. Cut pipes on the main unit with a tube cutter in order to make it easy to disconnect.

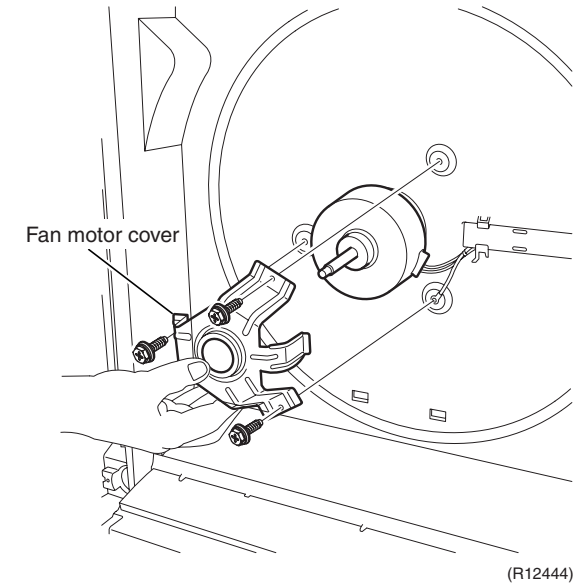
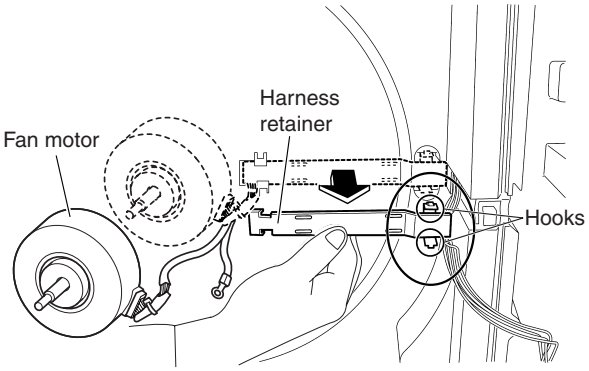
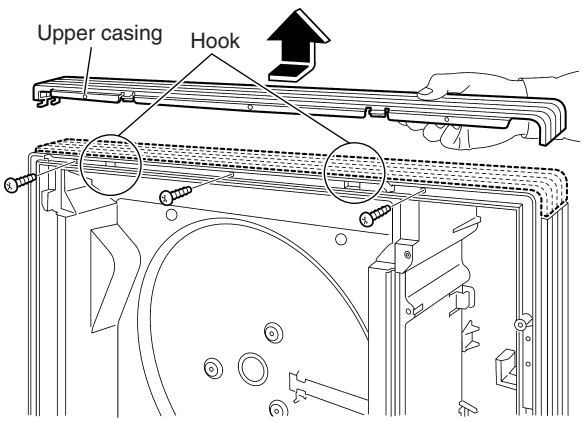
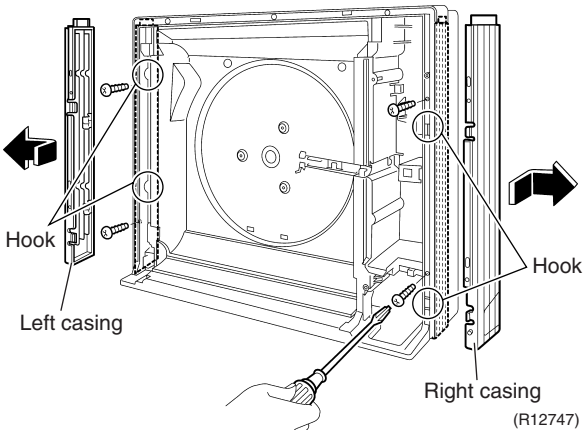
Note:

- Do not use a metal saw for cutting pipes by all means because the sawdust comes into the circuit.
- When withdrawing the pipes, be careful not to pinch them firmly with pliers. The pipes may get deformed.
- Provide a protective sheet or a steel plate so that the brazing flame cannot influence peripheries.

1.9 Removal of Fan Rotor / Fan Motor

Procedure **Warning** **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

Step	Procedure	Points
1. Remove the fan rotor.	 (R12503)	■ The screw has reverse winding. ■ Nut size: M6
1 Remove the 4 screws and remove the bellmouth.		
2 Remove the nut and remove the fan rotor.	 (R12504)	 (R12236) ■ When reassembling, align ▼ mark of the indoor fan with D-cut section of the motor shaft.
2. Remove the fan motor.		
1 Release the harness of the fan motor from the hook.	 (R12443)	

Step	Procedure		Points
2	Remove the 3 screws and remove the fan motor cover.	 (R12444)	
3	Unfasten the 2 hooks and remove the harness retainer. Remove the fan motor.	 (R12445)	
3. Remove the casing.			■ Press the 2 hooks backward and remove the casing.
1	Remove the 3 screws and unfasten the 2 hooks to remove the upper casing.	 (R12746)	
2	Remove the 2 screws and unfasten the 2 hooks to remove the right casing or the left casing.	 (R12747)	■ Press the 2 hooks backward and remove the casing.

Part 8
Trial Operation and Field Settings

1. Forced Operation Mode 75
2. Trial Operation 76
3. Purging air 77
4. Field Settings 78
   4.1 Model Type Setting 78
   4.2 When 2 Units are Installed in 1 Room 79
   4.3 Jumper and Switch Settings 80

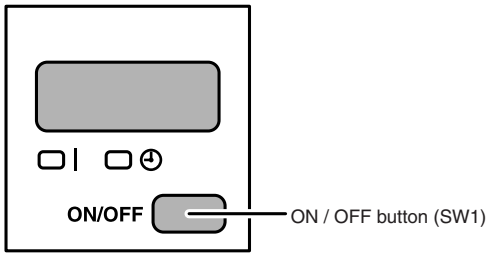
1. Forced Operation Mode

Outline

After installation, carry out the forced operation and make the water valve open to purge air.

Detail

Start	Press the forced operation ON/OFF button (SW1) on the indoor unit for 5 seconds.
Operation	Operation mode: FAN Airflow rate: H tap Water valve: full open
End	The forced operation ends when any of the following conditions is fulfilled. 1) The operation ends automatically after 15 minutes. 2) Press the forced operation ON/OFF button (SW1) on the indoor unit again. 3) Press the ON/OFF button on the remote controller.



(R12775)

2. Trial Operation

1. Measure the supply voltage and make sure that it falls in the specified range.
2. Set the temperature of the water to a sufficient temperature for heating or cooling (6°C to 60°C).
   - Trial operation may be disabled in either mode depending on the room temperature.
   - After trial operation, set the temperature to a normal level. (26°C to 28°C in cooling mode, 20°C to 24°C in heating mode)
3. The amount of the unit's water circulation should be 3 L/min to 15 L/min.

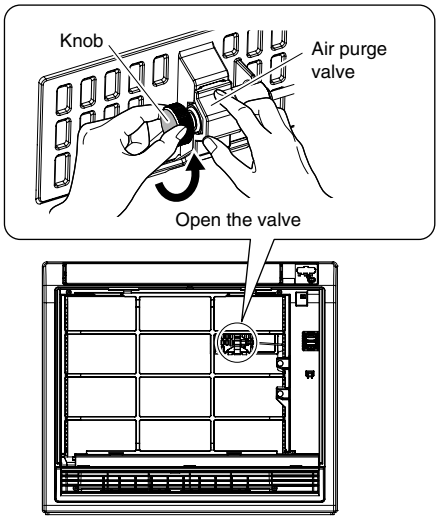
Caution

- If a special heat exchanger has been incorporated into the unit, the water circulation should be within the range specified for that product.
- If the water circulation is too low, sediment may collect due to stagnation. If too high, the heat exchanger may corrode due to the fast flow or abnormal sounds and pipe cracking may occur due to vibration.
- The maximum allowable pressure of the unit is 1.18 MPa.

3. Purging air

Air pockets sometimes form in the piping during trial operation after installation or during normal operation. To remove air pockets from inside the piping, follow the steps below to purge air from the unit. Be sure to purge air while the unit is in cooling or heating operation.

1. Remove the front panel and the air filter.
2. While pressing the air purge valve with one hand, turn the knob with other hand and open it.
3. Make sure that air has been completely purged, and then close the air purge valve securely.



(R12708)

Caution

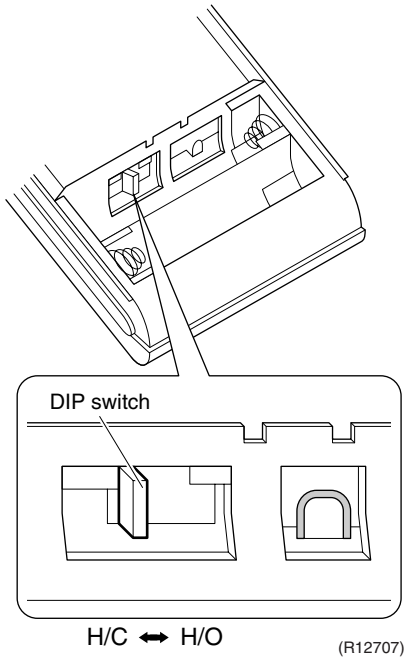
- There is a risk of injury if you touch the heat exchanger with bare hand.
- Be sure to close the air purge valve after purging air.
  Leaving the air purge valve open may result in water leakage and decreased performance.
- Water leakage occurs if the knob is loose. Check that the knob is tightly closed.

4. Field Settings

4.1 Model Type Setting

ARC452A15

- This remote controller is common to heating/cooling use and heating only use. Use the DIP switch on the remote controller to set heating/cooling use or heating only use.
- Make the setting as shown in the illustration. (The factory set is heating/cooling use.)
  - Heating/cooling use: Set the DIP switch to H/C.
  - Heating only use: Set the DIP switch to H/O.

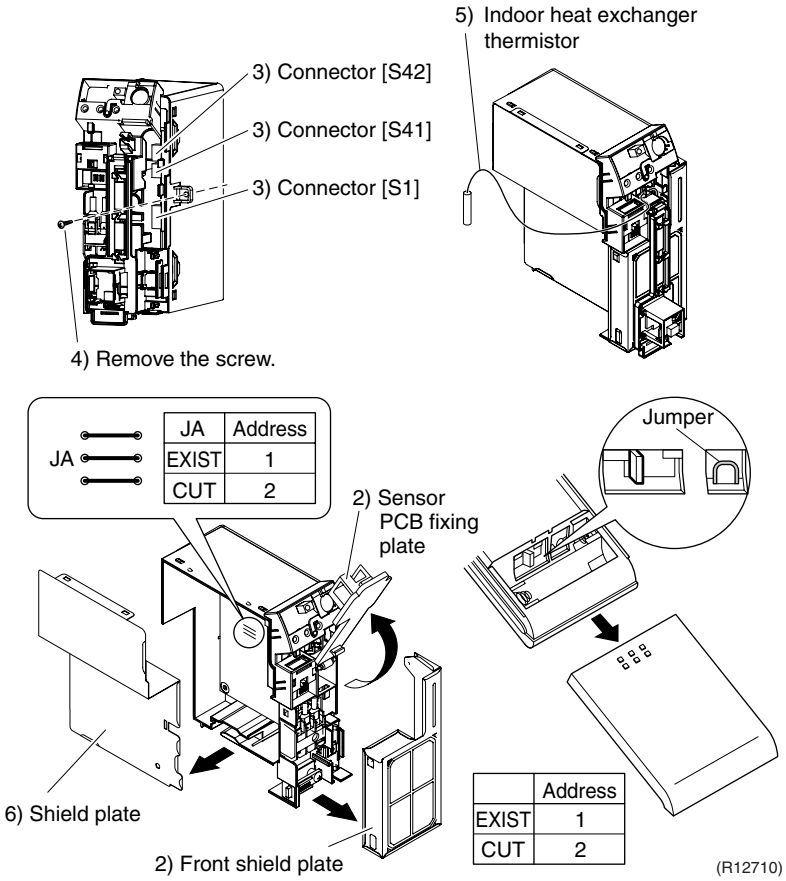


4.2 When 2 Units are Installed in 1 Room

When 2 indoor units are installed in 1 room, 1 of the 2 pairs of indoor unit and wireless remote controller can be set for different address.
Both the indoor unit PCB and the wireless remote controller need alteration.

How to set the different addresses

1) Remove the front grille.
2) Lift the sensor PCB fixing plate and remove the front shield plate.
3) Disconnect the connectors [S1] [S41] [S42].
4) Remove the electrical box (1 screw).
5) Pull out the indoor heat exchanger thermistor.
6) Remove the shield plate (8 tabs).
7) Cut the address jumper (JA) on the indoor unit PCB.
8) Cut the address jumper (J4) in the remote controller.



4.3 Jumper and Switch Settings

Jumper	Function	When connected (factory set)	When cut
JC	Power failure recovery function	Auto-restart	The unit does not resume operation after recovering from a power failure. Timer ON/OFF settings are cleared.

For the location of the jumper, refer to page 7.

Switch	Function	OFF (factory set)	ON
SW2-1	Changeover between heating/ cooling use and heating only use	Heating/cooling use	Heating only use
SW2-2	Interlinked control with “Altherma”	No interlinked control	Set the switch to ON position to enable the interlinked control with “Altherma” when you connect a hydrobox whose series name is “BA” or later. ★
SW2-4	Upward airflow limit setting	Exposed or half embedded installation	Set the switch to ON position when you install the unit embedded in the wall to avoid dew condensation.

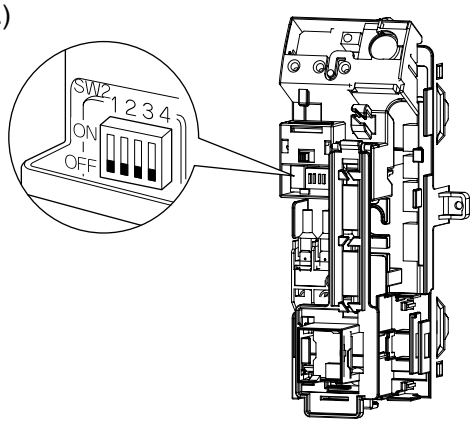
★ Example model name of hydrobox: EKHBXE008BA3V3

↑

Series name

Location of [SW2]

(Refer to page 7 also.)



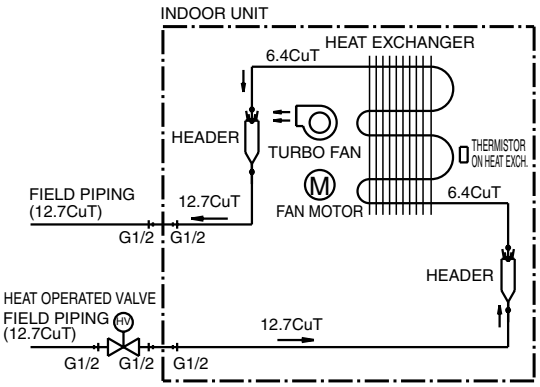
(R12714)

Part 9
Appendix

1. Piping Diagrams.....82
2. Wiring Diagrams.....82

1. Piping Diagrams

FWXV15/20AVEB



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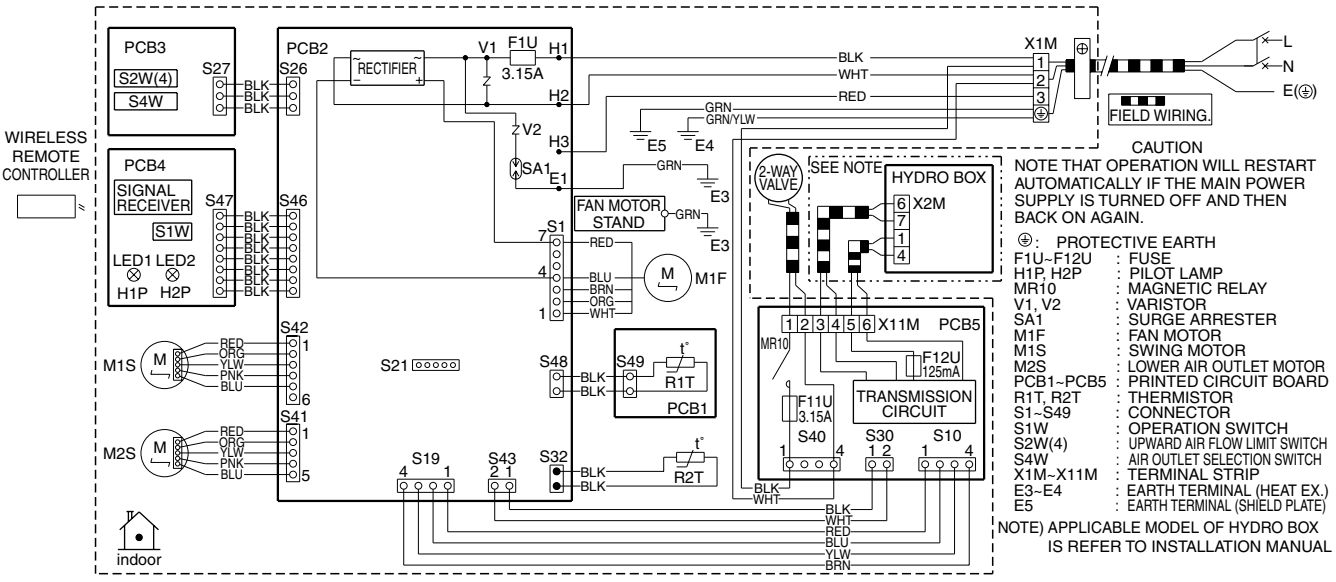
2. Wiring Diagrams

FWXV15/20AVEB



CAUTION
NOTE THAT OPERATION WILL RESTART AUTOMATICALLY IF THE MAIN POWER SUPPLY IS TURNED OFF AND THEN BACK ON AGAIN.

⏚: PROTECTIVE EARTH

F1U~F12U	: FUSE
H1P, H2P	: PILOT LAMP
MR10	: MAGNETIC RELAY
V1, V2	: VARISTOR
SA1	: SURGE ARRESTER
M1F	: FAN MOTOR
M1S	: SWING MOTOR
M2S	: LOWER AIR OUTLET MOTOR
PCB1~PCB5	: PRINTED CIRCUIT BOARD
R1T, R2T	: THERMISTOR
S1~S49	: CONNECTOR
S1W	: OPERATION SWITCH
S2W(4)	: UPWARD AIR FLOW LIMIT SWITCH
S4W	: AIR OUTLET SELECTION SWITCH
X1M~X11M	: TERMINAL STRIP
E3~E4	: EARTH TERMINAL (HEAT EX.)
E5	: EARTH TERMINAL (SHIELD PLATE)

NOTE) APPLICABLE MODEL OF HYDRO BOX IS REFER TO INSTALLATION MANUAL

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Warning

- Daikin Industries, Ltd.'s products are manufactured for export to numerous countries throughout the world. Daikin Industries, Ltd. does not have control over which products are exported to and used in a particular country. Prior to purchase, please therefore confirm with your local authorised importer, distributor and/or retailer whether this product conforms to the applicable standards, and is suitable for use, in the region where the product will be used. This statement does not purport to exclude, restrict or modify the application of any local legislation.
- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorised parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the User's Manual carefully before using this product. The User's Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any enquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. Air conditioners should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the outdoor unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the outdoor unit close to the sea shore, contact your local distributor.

JMI-0107

Organization:
DAIKIN INDUSTRIES, LTD.
AIR CONDITIONING MANUFACTURING DIVISION

Scope of Registration:
THE DESIGN/DEVELOPMENT AND MANUFACTURE OF COMMERCIAL AIR CONDITIONING, HEATING, COOLING, REFRIGERATING EQUIPMENT, COMMERCIAL HEATING EQUIPMENT, RESIDENTIAL AIR CONDITIONING EQUIPMENT, HEAT RECLAIM VENTILATION, AIR CLEANING EQUIPMENT, MARINE TYPE CONTAINER REFRIGERATION UNITS, COMPRESSORS AND VALVES.

JQA-1452

Organization:
DAIKIN INDUSTRIES (THAILAND) LTD.

Scope of Registration:
THE DESIGN/DEVELOPMENT AND MANUFACTURE OF AIR CONDITIONERS AND THE COMPONENTS INCLUDING COMPRESSORS USED FOR THEM

EC99J2044

All of the Daikin Group's business facilities and subsidiaries in Japan are certified under the ISO 14001 international standard for environment management.

Dealer

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